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Deafness and Psychosis: How Are Hallucinations And Delusions Shaped By Experiences Of Being Deaf?

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Portfolio Abstract

Background. The evidence base that has been established for hearing persons has demonstrated that experiences of hallucinations and delusions are shaped by the individual's context and the culture of their local community (e.g., Kent & Wahass, 1996; Stompe et al., 2006;Yamada, Barrio, Morrison, Sewell, & Jeste, 2006). The Deaf community has a distinct culture to the general British population, carrying with it different beliefs and social rules for living. However there is no research exploring the specific content and themes of hallucinations and delusions for deaf persons despite an understanding that; a) the content of these experiences reflect individual context and culture for hearing persons; and b) the personal meaning ascribed to these experiences (i.e., content reflecting their local culture and community) is necessary to understand the individual's feelings, distress and associated behaviours (Chadwick, Birchwood, & Trower, 1996; Strauss, 1991).

Study Aims. The aim of the current study was to explore d/Deaf adults' experiences of hallucinations and/or delusions within the context of unique experiences of being d/Deaf and Deaf culture.

Method. Multiple Sequential Functional Analysis (MSFA), a structured case study approach was used to track the developmental nature of hallucinations and/or delusions in a sample of three d/Deaf men from a secure specialist Deaf service. Multiple data sources were collected for each individual; participant interviews, file reviews and interviews with a professional. The data was triangulated to develop MSFA sequences of the individual case histories. An across-case analysis was also conducted of the MSFA sequences that intended to identify common themes that were shared across the participants. Thematic analysis was used as a structured approach to identifying shared themes in the across case analysis.

Results. The analysis identified two key findings. Firstly, unique experiences of being deaf and Deaf culture appeared to shape the content and themes of delusions with regards to delusions of grandeur. The second important finding was that there was a lack of information regarding the content of hallucinations for all the participants despite access to 113 documents in the file review process. It was therefore not possible to analyse how the

content and themes of hallucinations were shaped based on the individuals learning history and unique experiences of being d/Deaf.

Conclusions. The lack of content specificity indicates a clear clinical implication that we need to better understand how to support d/Deaf individuals in psychiatric services to understand and communicate their inner experiences. The significance in understanding the personal meaning of hallucinations for clinical interventions is acknowledged within hearing mental health (e.g. Chadwick et al., 1996) yet there appears to be barriers in accessing this information for d/Deaf persons in secure psychiatric services.

Statement of Contribution

As the lead researcher I was responsible for research design, university and NHs ethics applications, the collection and analysis of data and the write-up of the research.

Dr Mark Gresswell provided supervisory support throughout the research process, as the co-creator of the MSFA methodology he provided valuable guidance to the research design and gave many hours to the analysis. He also provided guidance on ethical questions and the write-up.

Dr Hannah Merdian provided supervisory support with ethical questions, analysis and the write-up of the research.

Dr Louise Braham provided supervisory support during the research design and provided guidance on ethical questions.

What is the role of the family in the identity development of deaf individual's? A meta-ethnography.

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Abstract

Identity development is influenced by our social contexts. The expectations constructed within the individual's social context establish parameters for acceptable behaviour and expectations of their role in the social group. Identity is also influenced by the provision (or restriction) or alternatives which are available for the individual to explore. The family environment is one of the first social contexts an individual is exposed to and the values of early relationships can become integrated into their own identity during adolescence. 90% of deaf children are born to hearing parents, how the parents adjust to deafness and accept their child as being deaf may influence the identity development of the child. Deaf identity development theories have suggested three distinct identities, culturally Deaf, culturally hearing or bicultural identities. The relationship between the family environment and identity development in deaf individuals has been explored predominantly through quantitative studies which have established a correlation between deaf identity development and family factors. The current meta-ethnography presents a qualitative synthesis of the literature which portrays how these family factors influence the identity development of deaf persons. Based on the findings of the synthesis, the author proposes three mechanisms through which the family may influence identity development; freedom/ restriction, perceived difference/ disability and acceptance/rejection, and outlines their relationship to the cultural and medical models of deafness.

Introduction

The aim of this systematic literature review is to consider the current theory and empirical evidence for identity development in deaf individuals and the role that the family may play in this process.

Erikson (1968) described identity as a subjective feeling of self-sameness which is continuous over time and involves the inner solidarity of the values of a significant social group. This process begins during childhood when the infant initially develops a sense of self through the unconscious adoption of the values of others based on early relationships (identifications) which are later either retained or rejected. Marcia (1966) proposed four identity statuses; identity diffusion, whereby the individual has not explored or made any commitment to goals or values; identity foreclosure, when the individual is committed to the values and goals ascribed to them but is yet to go through a process of personal exploration; moratorium is a period during which individuals are actively exploring alternatives but commitments are yet to be made and is a prerequisite to identity achievement, the successful identity formation of the individual. Identity formation "arises from the selective repudiation and mutual assimilation of childhood identifications and their absorption in a new configuration which in turn is dependent on the process by which a society (often through subsocieties) identifies the young individual" (Erikson, 1968, p.159). Therefore, identity is a socially constructed process, which is influenced by the individuals past and present experiences and how they integrate these into their identity (Hadjikakou & Nikolaraizi, 2006).

The family is the first social environment to impose expectations on the individual and therefore can play an important role in the process of identity development (Erikson, 1980). Research has demonstrated an effect of the family environment and familial relationships on the individual's identity development. Identity achievement has been associated with family environments which acknowledge and accept differences between members whereas individuals who are in moratorium have ambivalent relationships with their family (Marcia, 2001). Within the family context both parental and sibling relationships have been found to play a role in the identity formation of children (Grotevant & Cooper, 1985; Luyckx, Goossens, Soenens, & Beyers, 2006; Wong, Branje, VanderValk, Hawk, & Meeus, 2010).

The wider community can also influence the individual's identity development based on the cultural expectations of that society. The cultural and linguistic characteristics of the deaf community can give rise to a distinct Deaf identity (McIlroy, 2011). This notion reflects the cultural model of deafness whereby being Deaf (capitalised) refers to having a distinct identity related to Deaf cultural heritage and the Deaf community. By contrast, within the medical model of deafness, being deaf (lowercase) is constructed as a disability and predominantly viewed as a physiological condition with attention given to what is lacking (Lane, 1992; Marcowicz & Woodward, 1982). Reflecting the medical and cultural models of deafness, Glickman (1993) identified four identity categories; the culturally hearing identity whereby the individual holds the beliefs of the hearing group regarding deafness as an impairment to be overcome; the culturally marginal identity refers to individuals who are confused about their relationship to either group; individuals who have an immersion identity assign to the values of the Deaf group distinct from the hearing majority; and bicultural identity refers to individuals who have integrated their affiliations to both groups. However, there are contradictory accounts of how many variants of deaf identities there are, Holcomb (1997) proposed as many as seven identity categories, whereas Bat-Chava (2000) explored deaf identity in a group of 267 deaf adults and using a cluster analysis identified only three static identities; culturally hearing (CHI), culturally Deaf(CDI) and bicultural identity (BI).

Whilst deaf identity construction can be understood in relation to the identity theories which were based on the hearing population, the process through which these emerge may be different. Ohna (2004) proposed four stages of identity development; taken for granted, alienation, affiliation and deaf in my own way which are specific to the experiences of being deaf and do not align with the four stages proposed by Marcia (1966). Thus suggesting that the family influence on identity development for this population cannot be understood solely based on the existing hearing research and requires investigation in its own right.

Rationale

The relationship between the family and identity development in deaf individuals has been explored predominantly through quantitative studies which have established a correlation between deaf identity development and family factors, including parental

hearing status, attitudes towards deafness and communication methods used in the home (Desselle, 1994; Weisel, 1988). Jackson and Turnbull (2004) conducted a qualitative review of the wider impact of deafness on the family, whilst this touched on identity within individual themes it did not provide a comprehensive synthesis of the role of the family in identity development for deaf individuals. What is lacking at present is a synthesis of the qualitative findings of how these family factors influence the identity development of deaf persons and the importance of the family for the individual in establishing a CDI, CHI or BI and preventing identity confusion (i.e. culturally marginal identity).

Furthering understanding in this area is important due to the relationship between identity and psychological wellbeing. Thoits (2013) highlights the relevance of self-perceptions and in mental health by stipulating that issues of identity and negative evaluations of the self are central criteria for numerous psychological diagnoses including major depression and borderline personality disorder. The impact of identity development on psychological well-being is further complicated by having multiple identities. Brook, Garcia and Fleming (2008) posit that having multiple identities can lead to poorer psychological well-being if these identities are in conflict with one another. Persons who are deaf may develop multiple identities through establishing an identity in relation to their deafness. Furthermore, individuals with a CDI or BI have been found to have greater levels of self-esteem than individuals' who have a CHI (Bat-Chava, 2000).

By synthesising the available research, the current review intends to further understanding of the role of the family in the development of individual and cultural identities for deaf individuals and how the identified family factors influence this process.

Method

Meta-Ethnography

Meta-ethnography has been selected as the appropriate methodology for synthesising the available literature as this is an interpretative and inductive methodology (Noblit & Hare, 1988). Noblit and Hare (1988) identified seven phases of a meta-ethnography (table 1). The process of comparison between studies requires an idiomatic translation of the themes of one study and their interrelationships to those of another study. Three types of relationships may guide this process of translation and subsequent

synthesis; reciprocal whereby the studies and their findings are similar in account and can be directly translated; refutational relationships refer to when the findings or studies contradict one another and finally; lines-of-argument involves going beyond translating the studies into one another to construct an interpretation with the intention of revealing a new level of understanding which may have been hidden in individual studies.

Table 1

Noblit and Hare's (1988) seven phases of meta-ethnography

Phase	Purpose	Description
1	Getting started.	'Identifying an intellectual interest that qualitative research might inform'.
2	Describing what is relevant to initial interest.	Systematic search process based on criteria relevant to the topic of interest.
3	Reading the studies.	The repeated reading and documenting of themes, this process continues throughout the synthesis.
4	Determining how the studies are related.	Establishing a list of key themes, phrases, ideas or concepts in each study and how these are related to one another.
5	Translating the studies into one another.	Establishing how the themes of each study are related to one another.
6	Synthesizing translations.	Analysing types of competing interpretations, types of translations and synthesising studies into each other to produce a new interpretation and conceptual development.
7	Expressing the synthesis.	Presenting the synthesis in a manner which is appropriate for the culture of the intended audience.

Phase one has been presented within the introduction and rationale, the remaining phases shall be addressed within the methodology and synthesis processes.

Phase Two

Database Search Strategy. A systematic search was employed to identify relevant published literature. Five electronic databases were identified; PsycINFO, PsycARTICLES, MEDLINE 1946-present, CINAHL and ASSIA. The databases were searched individually on the 5th July 2016 using a group of search terms to identify papers concerning deaf participants in combination with a group of search terms intended to retrieve papers assessing identity in this target group (see Appendix 1 for individual search strategies). The following search terms were used (* indicates truncation):

Deaf, deafness, hearing disorder*, hearing impairment*, identity, cultural identit*, deaf identit*, bicultural identit*, bi-cultural identit*, hearing identit*, self-concept, social identit*, identity development, self-image, development of self, group identit*, identity formation.

No date restrictions were applied other than those inherent to the databases. The search limits 'English' and 'Human' were applied to prevent irrelevant papers being retrieved and limit the number of papers identified within the databases. The search limit 'Human' was considered necessary as search terms for deafness retrieved articles investigating anatomy and audition in animal experiments, 'English' was also applied because the author did not have the resources to attain adequate translations of papers where this was not freely available.

Family was used as an inclusion criteria and not a search term. This was to ensure maximum retrieval of articles which could contribute to the area of interest and prevent the search from being too restricted at the expense of losing relevant literature.

Selection Process. The search strategy retrieved 5018 papers, after removing duplicates this was limited to 4041 potential papers for inclusion in the review that were assessed against pre-determined inclusion and exclusion criteria outlined below.

Table 2

Selection criteria

Inclusion Criteria	**Exclusion Criteria**
Deaf participants	Adult onset of deafness
Onset of deafness prior to adulthood	Quantitative
Assesses Identity development/ attainment	Secondary sources of data
Assesses family factors	Grey literature
English language	
Original empirical research	
Qualitative	
Peer-reviewed	

The full search and selection process is depicted in figure one. During the initial screening of titles and abstracts papers were assessed to determine whether the sample was deaf or family members of a deaf individual and involved investigation of family factors and/ or identity and were excluded if these criteria were not met (N=3852).

Full texts of the remaining 188 papers were assessed in two phases. Phase one considered whether papers concerned both the identity of deaf individuals and family in relation to one another, articles which considered one but not both of these criteria were excluded (N=47). The current review was interested in original peer-reviewed research; this was to strengthen the quality of the review for two reasons. Firstly to ensure the data reflected the original interpretation of the researcher and the participants' perspectives. Secondly, to ensure a level of quality by including studies which had undergone the rigorous process inherent in peer-reviewed journal publication. Secondary sources and papers that were not original empirical research studies or were published in journals that were not peer-reviewed were therefore excluded (N=101). Three papers were identified that were not available for full text screening due to being out of print, or non-reply from study authors.

Phase two assessed whether the remaining 37 papers met the criteria for study design and onset of deafness in childhood. Onset of deafness prior to adulthood was required because this is the period during which individuals incorporate the values of early

relationships, identifications made with family members may therefore influence identity development. The family may therefore have a lesser or different influence on identity for individuals with onset in adulthood. A total of 10 papers were identified that were qualitative and either reported onset of deafness was prior to adulthood or the author was able to identify this from the information reported (i.e. all participants attended a school for the deaf or childhood events are referred to in the analysis). The reference lists of the 10 papers were reviewed and an additional study was identified against the inclusion and exclusion criteria resulting in a final sample of 11 studies for inclusion in the current review. An outline of the included studies and data abstraction is provided in Appendix 2.

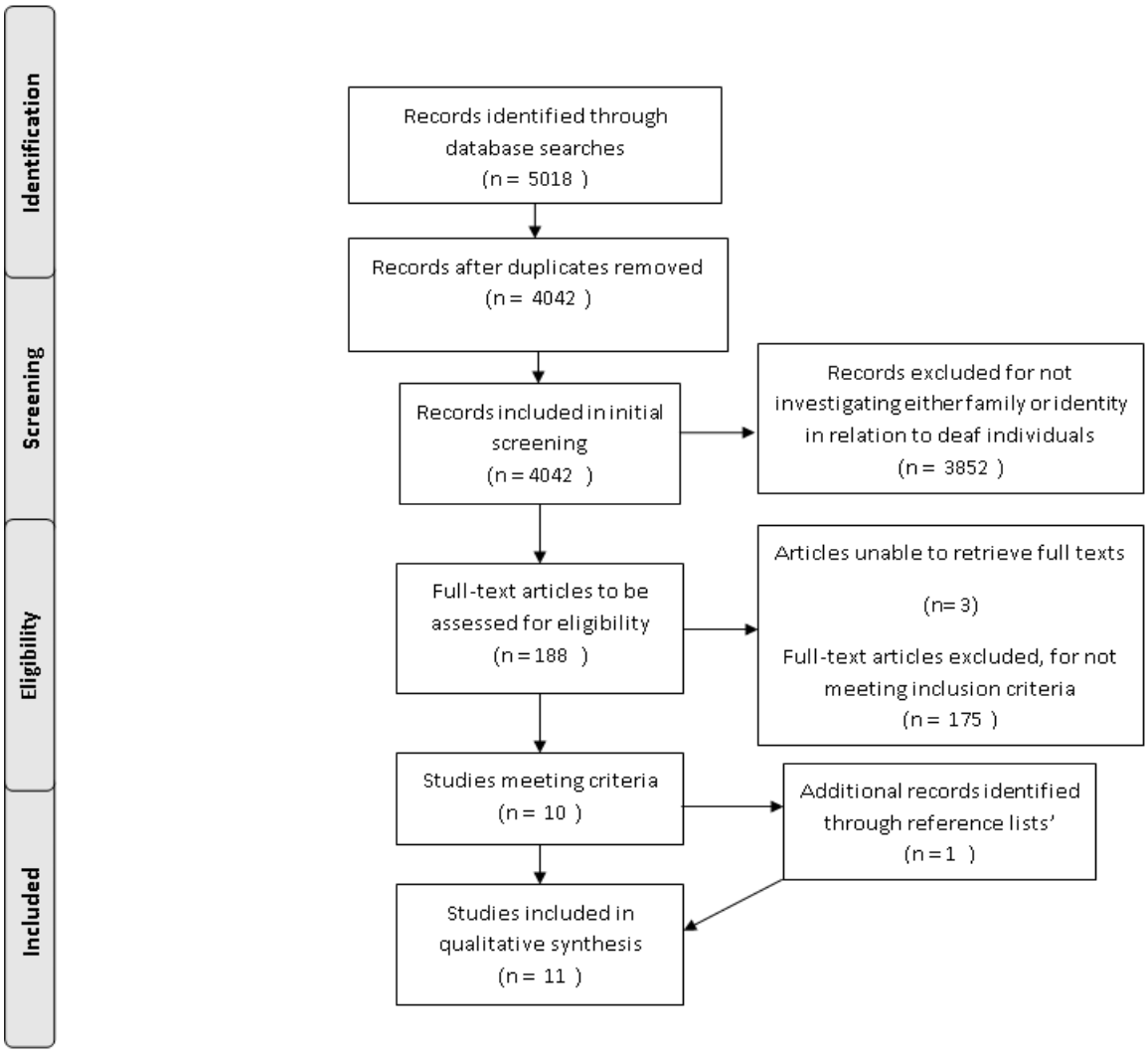

Figure 1: Process of data selection (Moher et al., 2009).

Quality Appraisal

An essential component of systematic reviews is the critical appraisal of the research evidence by assessing the extent to which a study is congruent and valid. The papers included in the review were appraised for the quality of the study using the Joanna Briggs Institute (JBI) appraisal tool for qualitative research (JBI, 2016). A comparative analysis of qualitative appraisal tools found that the JBI tool has a greater sensitivity to aspects of validity and coherence than the Critical Appraisal Skills Programme tool (Hannes, Lockwood, & Pearson, 2010). Due to the studies concerning deaf individuals three additional questions were added to the quality appraisal to assess the trustworthiness of cross-sectional qualitative research (Squires, 2009) (see table 3 for the quality appraisal ratings of studies).

The quality appraisal identified that whilst the studies were coherent in their methodological processes there were considerable limitations including the failure to define the sample with regard to the degree of deafness. The deaf population is a heterogeneous group; however, the majority of studies did not report the degree of deafness of the participants which could have implications for the findings. Individuals with a mild- moderate hearing impairment could have sufficient residual hearing to allow them to communicate orally with others. This may influence a CHI if they view themselves as 'hard of hearing' as opposed to deaf.

The inclusion of a reflexive account is a vital component of qualitative research to add credibility to the analysis and increase rigour (Jootun, McGhee, & Marland, 2009). Although the voice of the participants was adequately represented in 10 of the studies, only four studies accounted for the possible researcher or participant influence during the data collection phase (Al-Makhamreh, 2016; Flaherty, 2015; Hardy, 2010; Page, 1993). This point is further demonstrated as six studies did not report the process of translation during the data collection process which could influence the data. Furthermore, only the study by Page (1993) reported the epistemological position, a perspective which may influence the researcher's interpretation. Overall there was a lack of transparency in the studies included in the review; however, the studies were critiqued on the basis of what was reported in the restricted word count of the article which may not represent the actual procedures of the study.

Table 3

The quality appraisal ratings for the included studies

JBI Criteria	**Study**										
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
Is there congruity between the stated philosophical perspective and the research methodology?	U	U	U	U	U	U	U	U	Y	U	U
Is there congruity between the research methodology and the research question or objectives?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Is there congruity between the research methodology and the methods used to collect data?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Is there congruity between the methodology and the representation and analysis of data?	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
Is there congruity between the research methodology and the interpretation of results?	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
Is there a statement locating the researcher culturally or theoretically?	Y	N	Y	Y	N	Y	Y	N	Y	Y	N
Is the influence of the researcher on the research, and vice- versa, addressed?	Y	N	N	Y	N	N	Y	N	Y	N	N
Are participants, and their voices, adequately represented?	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
Is the research ethical according to current criteria or, for recent studies/ and is there evidence of ethical approval by an appropriate body?	Y/U	Y/U	Y/Y	Y/Y	Y/Y	Y/U	Y/U	Y/U	Y/U	Y/U	Y/U
Do the conclusions drawn in the research report flow from the analysis, or interpretation, of the data?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Cross-Sectional research criteria											
Does the research report the degree of deafness?	N	N	N	N	Y	Y	N	N	N	N	N
If deaf or participants with a different linguistic preference were interviewed is it reported what communication method was used and whether translation occurred?	Y	Y	n/a	n/a	Y	N	Y	Y	Y	Y	Y
Is the hearing status and competence of the researcher and/or interpreter reported if interviews were conducted in sign language or in a language other than English?	N	N	n/a	n/a	Y	N	Y	N	Y	N	N

Note: Y=yes is criteria met; N=no criteria is not met; U=unknown whether criteria is met; n/a= not applicable for the study

Synthesis

Phases Three to Six

None of the studies included in the review directly investigated the relationship between family and identity as the main research aim. However, the studies offered important contributions to this area within the wider aims of their investigation which has allowed the author to construct new interpretations by translating the relevant concepts into one another and identifying reciprocal and refutational relationships. To this end each theme within the current synthesis can be considered a third order construct as they have gone beyond the original researchers' interpretations as there were no existing themes pertaining to the topic of family influence on identity, thus providing a new level of interpretation. Table four depicts which studies informed the themes in the current synthesis.

Table 4

Themes identified from the studies

New Interpretation Theme	**Study**										
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
The impact of deafness on parent-child attachment.			*	*						*	*
Deafness is a difference not a disability.	*	*		*	*		*			*	*
Parental protection	*			*						*	
Communication barriers to identity.		*		*	*	*	*		*		
Transitions from the family environment.				*	*		*				
Relating to self as a different other.							*				*

Note: *indicates studies which contributed to the new themes. Subthemes are indented.

The original concepts from study eight did not inform the new interpretation themes. This was due to a lack of representation of the participants' voice and difficulty in establishing how data was derived. This reflects the lack of transparency in this study found in the quality appraisal.

Phase Seven

The impact of deafness on between parent-child attachment. Four studies reported the negative impact of diagnosis on parents' ability to bond with their child (see table 4). This

theme was exclusively constructed from the perspectives of hearing parents. Reciprocal translations found that when diagnosis occurred early, parents did not have the opportunity to bond with their child or relate to them as their baby (Fitzpatrick, Graham, Durieux-Smith, Angus, & Coyle (2007) before having to incorporate deafness into their perception of their child. This resulted in a confusing relationship between relating to their 'child as a 'child' and their child as a 'deaf child''[1] (Young, Canavan, & Hindley, 1999). Furthermore, the parents' ability to bond with their child was negatively impacted due to the grief they experienced for the perceived loss of the child they had expected. The realisation that they would never experience the developmental milestones and the everyday interactions they had taken for granted was a difficult process and resulted in a "long process of mourning"[2] (Flaherty, 2015) that some parents still had not come to terms with. This had a detrimental impact on their attachment with the child (Steinberg, Davila, Collazo, Loew, & Fischgrund, 1997; Young et al., 1999). In these instances parents' attitudes towards deafness was often "we can fix it" reflecting the medical model that deafness is something to be overcome (Flaherty, 2015).

The study by Fitzpatrick et al., (2007) also provided a refutational translation of the negative impact of deafness on the parent's way of relating to their child. An alternative account was offered that early diagnosis was beneficial because parents did not relate to their child as an individual, a child who was normally developing, prior to learning of their deafness. As a result the parent was able to integrate deafness into the child's identity because it was "part of who he was almost from the beginning" (Fitzpatrick et al., 2007). Therefore, being able to integrate deafness into the child's identity without conflict may reduce the impact of diagnosis on the parent- child attachment.

Deafness is a difference not a disability. Across the studies, an issue of importance for parents was the perspective that viewing deafness as a disability is restrictive of the child's identity. The family's acceptance of Deaf culture and sign language was an important factor in helping their child to construct an individual identity. Parents who accepted Deaf culture and sign language reported views which align with the cultural model of deafness as they advocated that deafness should not be viewed as a "medical problem" which needs "to be fixed" (Flaherty, 2015). Parents described how the medical approach to deafness reduced their child's identity to a "pair of ears" (Flaherty, 2015). Deaf culture on the other hand provided an environment where the "child was accepted for what he was, and not something that needed to be improved and changed" (Flaherty, 2015). The Deaf community was considered to provide a 'sense of identity and confidence' for the child (Flaherty, 2015).

Family acceptance was viewed to influence the identity of the deaf person not only by parents but also by deaf individuals. Parents who became involved in the Deaf community viewed their child as having a BI (Flaherty, 2015). Deaf individuals whose family emphasised their own culture and rejected the alternatives, viewing deafness as a disability which needed to be overcome, incorporated the family's attitude towards deafness into their own value system and developed a CHI (e.g. Al-Makhamreh, 2016; Bat-Chava, 2000).

Parental protection. Reciprocal and refutational translations from three studies (see table 4) highlighted a subtheme of parental protection; the parental endeavour to protect the identity of their child as being a child like any other and advocating that "because he has a problem, you shouldn't treat him differently" (Steinberg et al., 1997). Reciprocal translations within this theme centred on wanting to foster autonomy and not construct an identity of abnormality or view deafness as a disability (Flaherty, 2015) in addition to protecting their child's individual identity from the stigma of disability from the community. Protecting their child's identity from stigma was particularly evident in minority communities as parents felt their child's individuality had become subsidiary to deafness to the extent that they would be referred to as 'the deaf one' and not their own name (Steinberg et al., 1997).

The ability to foster autonomy in their deaf children may be easier for Deaf parents who can draw on their own life experiences and therefore "understand what… deaf children need and how they feel, not like the hearing mothers" who view their child as "vulnerable" (Al-Makhamreh, 2016). The account by Al-Makhamreh (2016) provides a refutational translation of protecting the child's identity as hearing parents who view deafness as a medical condition or vulnerability were likely to protect the child from the dangers of the hearing world at the expense of their autonomy and individual identity.

The cultural model of deafness allowed parents to view their child as an individual and not construct an identity of disability for the child that may hinder their independence and ability to develop an individual identity. The model of deafness adopted therefore, not only influences the cultural identity developed (i.e. CHI, CDI or BI) but may also influence an identity of disability if children are perceived as vulnerable within the medical model perspective.

[1] Inverted commas indicate quotes from the researchers.
[2] Speech marks indicate quotes from participants.

Communication barriers to identity. Six studies (see table 4) discussed a recurring issue of how the limitations of communication in the family environment, and the perceived exclusion as a result of these communication barriers, influenced the identity development of deaf individuals. The development of a CDI and involvement in the Deaf community allowed the individual to escape the isolation and sense of being an "invisible" member of the family that they experienced due to limited access to family communication (Hardy, 2010). The impact of communication difficulties within the family also impacted the ability of the deaf individual to learn about their cultural heritage.

Reciprocal translations identified that deaf children had to explicitly seek information about their cultural heritage (in terms of ethnicity etc.). For example, deaf individuals would actively "read more in order to be knowledgeable" about their heritage because they would not learn indirectly through daily interactions and when information was shared, parents would have "very short conversations about the past, about culture" as these were difficult concepts to communicate (Foster & Kinuthia, 2003).

As a consequence a finding across the studies was that deaf individuals' understanding of their cultural heritage was limited and they had an uncertain sense of cultural identity or "confidence in who they are" in relation to their family background (Foster & Kinuthia, 2003; Smiler & McKee, 2007). Individuals therefore developed a CDI "with being Deaf first and foremost" and their ethnicity second as they had greater access to information regarding the Deaf culture through sign language and the Deaf community (Smiler &McKee, 2007). The limitation of communication within the family and lack of understanding about their cultural heritage could be considered to influence identity development in two ways. Firstly not having access to information about their family's culture limits their identity development as individuals cannot grasp the culture that is shared by their family. Secondly, individuals may search for a connection within the Deaf community to develop a cultural identity of their own in response to being unable to integrate other cultural values into their identity.

> *"…. when people say, "Oh, I'm Black," you know I always ask, "What are you talking about? What does that mean? "… When people say "I am deaf " I know what that means….I don't know what Black means....I am an athlete that's deaf." (Foster & Kinuthia, 2003, p.279).*

For individuals who integrated deaf culture and their family culture (whether this was hearing culture or ethnicity), it was important for the family to actively support the individual to learn about their heritage and allow the child to explore beyond the values within the home environment to develop a differing cultural knowledge. Individuals who had been supported in this process considered themselves as 'bicultural' and reflected on the strength they gained from being able to fit into both worlds (Smiler &McKee, 2007).

Transitions from the family environment. The theme of transitioning from the family environment had a relatively low prevalence across studies (Flaherty, 2015; Foster & Kinuthia, 2003; Ohna, 2004), however, reciprocal translations demonstrated how an individual's identity may shift from a CHI to a BI or CDI. Bicultural identities were fostered by parents supporting the child to become integrated into the Deaf community, allowing the child to explore beyond the family's culture and therefore shift their identity away from the hearing world they were immersed in during early childhood. Within families who valued the hearing culture and held a medical perspective of deafness this could be achieved through the child being supported to attend Deaf schools (Foster & Kinuthia, 2003).

Ohna (2004) extended this notion by revealing that individuals whose family support a CDI development in childhood may later have to integrate new dimensions into their identity when these values are confronted in later transitions. This occurred when the transition process came full circle in adulthood, when Deaf individual's had their own families. Deaf parents' self-concept was confronted when they had hearing children and had to learn to relate to themselves as not only being Deaf but being a Deaf parent of hearing children (Ohna, 2004).

Transitions therefore influenced identity as the individual was exposed to a new world beyond the family environment they were accustomed to and learned to relate to themselves within this new social context. Having a secure family environment supported individuals through the process of choosing or integrating new cultural values.

Relating to self as a different other. Young et al., (1999) revealed that interactions with Deaf adults meant that parents were confronted with the realisation that there are life experiences that differed to their own lived experiences and realm of understanding. This in turn impacted the parent's grief process as they were no longer able to deny their child's differences because "if you want to pretend that it is not a deaf child you can pretend that it's not a deaf child, but when it's actually a Deaf adult you can't pretend, you have to do

something about it and it makes you realise this is what the child's going to grow up to be" (Young et al., 1999). In developing awareness of the differences between themselves and individuals who are Deaf, parents felt that there was a shared understanding between Deaf individuals of what it is like to be deaf and these adults knew things about deaf children that they as parents would never truly understand about their own child.

Learning of their child's deafness therefore impacted not only the way parents relate to their child but also to themselves in having to conceptualise themselves as 'hearing' parents. In order to identify with their child who has a deafness parents must also learn to identify with themselves as hearing, an ability which many will have taken for granted prior to this point but will now define them as different to their child and how they relate to this child. The study by Ohna (2004) provides an account that mirrors this for Deaf individuals whose children are hearing as their identity is challenged by having to provide a family environment that allows autonomy for their children as hearing individual's, as they had been supported as a deaf child. The hearing status of children of both Deaf and hearing parents therefore emphasises the difference in social identity between family members and all individuals must learn to adapt in order to support the identity of both parent and child.

Line of Argument Synthesis

The current synthesis revealed possible mechanisms through which identity may be influenced by the family and how these align with the cultural or medical models of deafness. It appeared that it was the parent's allegiance with either model of deafness which influenced the identity development of the individual.

Parents who held views which aligned with the medical model of deafness saw deafness as a deficit to be fixed; this may influence the development of an identity of disability by reinforcing this imposed perception of the individual which is held by the wider society. Viewing deafness as a disability restricted both the autonomy and identity alternatives for the individual. Families who viewed deafness within the medical model may be less likely to learn sign language as this means accepting an aspect of the Deaf culture. Individuals may therefore experience an increased sense of isolation and exclusion in the family environment and view the self as a 'different other'. Individuals raised within the medical perspective may develop a CHI due to restrictions of alternative options or may rebel against the imposed discourse of disability abandoning the family attitudes towards deafness by constructing a CDI.

Parents who viewed deafness as a difference and not a disability were more willing to venture into the Deaf world themselves, viewing the child as a person like any other and shared the views of the cultural model of deafness. Individuals raised in these families did not have restrictions imposed on who they are or have limits ascribed to what they could do and therefore become. These individuals experienced acceptance by their parents of who they are as a unique individual and also acceptance as a member of a different community which was distinct to their parents. It could be argued that adopting the cultural model of deafness helped parents to foster a secure attachment style enabling the individual to feel comfortable to shift to a CDI or integrate the deaf culture to the hearing culture thus developing a BI.

This synthesis has aimed to provide some understanding of the previously unanswered question within the literature of 'how' the family influences identity. The family may influence the deaf individual's identity development through three mechanisms which ultimately depend on their allegiance to either the medical or cultural model of understanding deafness. The development of a CDI/ BI versus a CHI may be influenced through; freedom versus restriction or perceived difference versus disability. In addition to these mechanisms a CDI may also be influenced through the mechanism of acceptance or rejection.

Discussion

This meta-ethnography aimed to investigate the role of the family in the identity development of deaf individuals and how the identified family factors influence this process.

The role of the family in the construction of a CDI can be considered to be providing a supportive environment whereby the individual is accepted as being a unique person who is not perceived through discourses of disability. This reflects the findings by Marcia (2001) that family environments which acknowledge and accept the differences of individual members support identity achievement. Families may play a role in influencing a CDI/ BI by encouraging autonomy and not limiting the individual's possibilities as they may be through the construction of disability within the medical model of deafness. The findings in the current review provide some understanding for the relationship between CDI/ BI and increased self-esteem (Bat-Chava, 2000). The positive environmental factors in families which support the development of a CDI/ BI may also support positive self-esteem due to the acceptance provided by the family.

Quantitative research has identified correlations between family factors (parental hearing status, communication methods and attitudes towards deafness) and identity development in deaf individuals. The current review provides some understanding of how these factors may influence identity. By conducting a qualitative synthesis it does not appear that it is the hearing status of parents which influences identity development directly but more the flexibility of hearing parents to adapt to having a deaf child. For example, deaf children were not restricted to a CHI if parents learned sign language and were open to their child exploring beyond their own hearing culture.

Communication methods used in the family influenced identity development as parents who used sign language became familiar with Deaf culture shifting their perception of the child to being bicultural. Where sign language was not used within the home environment identity was influenced in three ways; firstly such parents could be considered to be less accepting of Deaf culture and may restrict the individual to a CHI due to an allegiance with the medical model and the perception of deafness as something to be overcome through technology and oralism. Chen (2014) supports the finding that the negation of deafness and limited or absence of sign language in the child's home may mean that the individual conforms to their environment and develop a CHI. Secondly, the feelings of exclusion and isolation that deaf individuals may experience in homes where they do not have access to conversation may influence the development of a CDI due to a desire to find inclusion with 'like others'. The development of a CDI as a result of perceived isolation is supported by Social Identity Theory (Tajfel, 1981) which posits that when an individual's social group does not provide positive contributions to the individual's social identity, he/she may attempt to leave that group psychologically. Finally, limited communication with the family restricts the deaf individual's understanding of the family cultural heritage meaning that they may be limited in their opportunity to develop different cultural identities. As a result of limited access to the differing cultures and poor communication of traditions individuals may develop a predominantly CDI.

Family attitudes towards deafness influenced identity development through the proposed mechanisms of acceptance/rejection, perceived difference/disability and freedom/ restriction. The mechanisms restriction and perceived disability were inherent to the medical model and are considered to foster a CHI, rejection also arose from the medical perspective but in contrast may influence a CDI. Sociocultural approaches highlight the role of society in identity development through the provision (or non-provision) of identity alternatives for the

individual (e.g. Shotter & Gergen, 1989). Identity development for deaf individuals could be viewed as the result of cultural possibilities (CDI/ BI) or restrictions (CHI) which are available within the family context.

The synthesis revealed the implications for attachment for hearing parents of deaf children due to the limited opportunity to relate to their child as 'a child' distinct from their deafness. However, if a parent can overcome their grief and integrate the deafness into their perception of the child the impact of diagnosis may be lessened. This mirrors findings in research into attachment between parents and children with various difficulties. When parents are unable to resolve their grief with respect to the child's diagnosis, children are more likely to have an insecure attachment compared to children of parents who have resolved their grief (Barnett et al., 1999; Marvin & Pinata, 1996). Pittman, Keilley, Kerpelman and Vaughn (2011) propose that attachment histories influence identity formation as an identity is the construction of the self through significant others. It is unknown how attachment styles may influence identity in deaf individuals but through the current synthesis it appears that the bond between parent and child may be impaired unless deafness is viewed as a social identity and not a disability.

Limitations and Future Recommendations

There were a number of limitations in the current review; however, these indicate areas for future research. The accounts which informed the current synthesis were predominantly constructed by parents and caregivers. This identifies a need for more research with deaf individuals to gain their perspectives of how the family environment influences identity development. There were a limited number of participants which represented the family environment of deaf children of Deaf parents. This limited exploration of the identity development for these individuals, therefore there may be other factors which have not been accounted for in the identity development of these individuals and there was no exploration of what family factors may influence an alternative identity development to CDI. Future research would benefit by actively ensuring these individuals are represented within the sample.

A further limitation was that none of the studies intended to assess the relationship between the family and identity as the main research aims. This resulted in an initially descriptive account of the themes in the current review to ensure transparency of how the interpretations had been constructed as there were no existing themes pertaining to this topic.

The synthesis provided insight into areas which had been unanswered within the quantitative literature and highlighted implications for the influence of family factors on the individual's wellbeing (e.g. the impact on attachment). Future research directly investigating the influence of the family on identity development for deaf persons from a qualitative perspective is needed to meet this identified gap in the literature. In relation to this, research exploring parents' motivation for their involvement in their child's identity development could explain interpersonal differences for hearing parents and the conditions they provide for their child's development.

An issue identified in the quality appraisal is the current poor quality of qualitative research with Deaf individuals with regards to transparency and cross-cultural considerations. Future research should consider recommendations for cross-cultural research and reporting of deafness in the sample.

Reflexivity

It is important to acknowledge that as a result of translating the studies into third order constructs the presented synthesis may have been influenced by the synthesisers own world views in relation to the topic (Noblit & Hare, 1988). The author acknowledges that she holds views in line with the cultural model of deafness. The positioning of the author has the potential to influence the findings, however, the synthesis was presented through a degree of transparency. Finlay (2006) suggests that qualitative research can be supported through transparency; the current synthesis therefore provided evidence from the original accounts to enable the reader to assess the inductiveness of the presented findings (Toye et al., 2013).

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Journal Paper

Formatted in preparation for submission to American Annals of the Deaf (see Appendix 3 for journal guidelines).

Abstract

The evidence base that has been established for hearing persons has demonstrated that experiences of hallucinations and delusions are shaped by the individual's context and culture (e.g., Kent & Wahass, 1996; Stompe et al., 2006). The Deaf community has a distinct culture , however, to date there is no research exploring the specific content and themes of hallucinations and delusions for deaf persons despite an understanding that the personal meaning ascribed to these experiences is necessary to in order to facilitate interventions for clients difficulties (Chadwick, Birchwood, & Trower, 1996; Strauss, 1991). The current study therefore aimed to explore d/Deaf adults' experiences of hallucinations and delusions within the context of unique experiences of being d/Deaf and Deaf culture. Multiple Sequential Functional Analysis (MSFA) was used to track the developmental nature of hallucinations and/or delusions in a sample of three d/Deaf men from a secure specialist Deaf service. The analysis identified that unique experiences of being deaf and Deaf culture appeared to shape the content and themes of delusions with regards to delusions of grandeur and participants desires to disconfirm beliefs that they held about themselves in relation to the negative association they had made of deafness being inferior. No evidence was found of unique experiences shaping the content and themes of hallucinations, however there was a distinct lack of information available regarding content and the paper presents possible reasons for this finding.

Key words: Deaf; Psychosis; Hallucinations; Delusions; Functional Analysis

Introduction

A Note on Terminology

This paper considers experiences of hallucinations and delusions in profoundly deaf adults. Due to the considerable diversity among deaf persons with regards to the degree of deafness, linguistic preferences and cultural identity it is first important to outline key terminology. Individuals who have a deafness are a heterogeneous group and as such there are numerous terms to describe the various degrees of deafness, language and hearing history (see extended 1.1). For example, hard of hearing refers to individuals who have a limited degree of residual hearing and often these individuals lost their hearing in later life. The specific terms can therefore be used to communicate the degree of deafness and communication affected, in addition the term 'Deaf' (capitalised) also denotes the individual's association with the Deaf community, Deaf culture and use of British Sign Language (BSL) (Denmark, 1994; Meadow-Orlans & Erting 2000). 'Deaf' is therefore the term used to describe individuals who are part of the Deaf community, holding a minority cultural and linguistic identity (Ladd, 1988) (see extended 1.2). Whilst Deaf reflects a cultural conceptualisation, 'deaf' (lowercase) reflects a medical conceptualisation often referring to individuals who have an acquired deafness and often still use spoken language as their preferred form of communication and may therefore use assistive technology (Ladd, 2003; Woodward, 1972). The term 'd/Deaf' is used when reference is made to both deaf and Deaf groups or if the identity of an individual (with regards to being considered deaf or Deaf) is unknown.

Psychosis and Deafness

Psychosis has been considered to be a mental state whereby the individual has difficulty distinguishing between inner experiences and reality and has experiences that are not shared by others in their environment (Bentall, 2004; Sproston & Nazroo, 2002). There are a number different disorders that fall within the category of psychoses, however, these are broadly understood to consist of key features including; delusions, hallucinations, disorganised thinking and behaviour and negative symptoms (DSM-5: American Psychological Society [APA], 2013). The prevalence rates of psychoses have been found to vary depending on the specific disorder. Within the general population the lifetime prevalence rates are estimated to be 0.2% (delusional disorder), 0.3% (schizoaffective

disorder) and 0.3- 0.7% (schizophrenia) with brief psychotic disorder thought to account for 9% of cases of first-onset psychosis (APA, 2013).

The prevalence of psychosis in the Deaf population is difficult to estimate because of barriers to accessing services (e.g., limited local Deaf services) and it is not customary to register hearing status upon admission into mental health services. Therefore, the prevalence estimates of psychosis in this population are reported from research, but very few studies have investigated prevalence rates with large samples (Fellinger, Holzinger, & Pollard, 2012). The available large scale population based studies suggest that deafness is associated with an increase in experiences of symptoms of psychosis (Stefanis, Thewissen, Bakoula, van Os, & Myin-Germeys, 2006; Thewissen et al., 2005). A population-based Dutch study found that hearing loss was associated with an increase of psychotic symptoms at the end of a three year follow up; adults with a hearing impairment were found to be three times more likely to have psychotic symptoms (Thewissen et al., 2005). Similar findings were shown in a large scale replication study in Greece, more than 11,000 new-born children were followed up at ages 7 and 19 and deafness was associated with twice the frequency of psychotic symptoms (Stefanis et al., 2006).

However, in both of these studies, which have been reported to indicate the difference between the Deaf and hearing population in a review of the mental health of Deaf people (Fellinger et al., 2012), deafness was poorly defined and operationalised in the comparative sample. For example, in the study by Thewissen et al. (2005), deafness was established by a subjective report of whether the participants had experienced deafness or serious hearing loss over the last 12 months at the time of the interview. The limitations related to sample descriptives, therefore, means that it is not possible to determine whether the research is representative of individuals who were hard of hearing, had acquired hearing loss in later life or were profoundly deaf since birth, used sign language and held a cultural identity related to their deafness, limiting the generalisation of findings (See extended version 1.3).

The stress-vulnerability model (Zubin & Spring, 1977) proposes that exposure to psychosocial stressors is a key factor in the development of psychosis (see extended version 1.4). A possible explanation for the increased prevalence of psychosis in the Deaf population may therefore be the increased psychosocial stressors and ‘social defeat’, i.e.

being in a subordinate position or having an outsider status, associated with being a member of a minority community. Heider and Heider (1941) reported on beliefs held by Deaf people about hearing peoples' attitudes towards them and outlined that Deaf persons identify as being in a minority group that is discriminated against and held in a lower social regard by the hearing majority. Research has found that other minority groups have an increased prevalence of psychosis; for example, Black and Ethnic Minority (BME) groups and immigrant communities (Cantor-Graae & Pederson, 2007; Selten & Cantor-Graae, 2005; Veiling et al., 2006). With regards to being deaf, deaf children can experience social isolation in the family environment, school and community due to communication difficulties (Greenberg, 2000). It is also important to note that deaf people receive negative messages about their deafness being a disability and these social messages can become internalised into core aspects of the individual's self-concept and contribute to mental health difficulties (Vernon & Andrews, 1990). The stress-vulnerability model suggests that psychotic symptomatology will only emerge when the individual's threshold of stressors exceeds their vulnerability level (Zubin, Magaziner, & Steinhauer, 1983). It is therefore possible that deafness in itself is not a risk factor for psychosis as the evidence on prevalence rates would indicate (e.g., Stefanis et al., 2006; Thewissen et al., 2005) but that d/Deaf individuals experience increased psychosocial stressors such as 'social defeat' throughout their life and these continued experiences may exceed their threshold for vulnerability to developing psychosis.

Hallucinations and Delusions

Bentall (1990; 2004) advocates that research concerning psychosis be conducted in a symptomatological approach due to the heterogeneity of individuals with psychosis meaning that a valid all-encompassing theory would not be possible to develop with participant samples. In line with this approach, the remainder of this paper will refer specifically to the positive symptoms of hallucinations and delusions.

Whilst the stress-vulnerability model has become one of the predominant models in understanding the development of psychosis, cognitive theories also have a high prevalence within the literature of psychosis broadly but also the separate symptoms of hallucinations and delusions. Cognitive theories have implicated specific deficits, for example, the misattribution of external stimuli (e.g. Bentall & Slade, 1985). Source

monitoring difficulties have been implicated in the misattribution of inner speech to external sources in voice hearing (Morrison & Haddock, 1997; Morrison, Frame, & Larkin, 2003; Waters et al., 2012). Cognitive theories have also suggested that these experiences can be viewed as a mechanism whereby the individual attempts to make sense of and protect themselves from painful experiences and negative self-evaluations (Chadwick, Birchwood, & Trower, 1996; Zigler & Glick, 1988) (see extended 1.4 for further discussion of cognitive theories).

The prevalence of cognitive theories in research also translates into clinical practice as Cognitive Behaviour Therapy (CBT) is the recommended intervention for individuals with a diagnosis of psychosis (NICE, 2014). Behavioural theory is the second foundation of CBT and would propose that hallucinations and delusions are shaped and maintained by the environment and the individual's learning history. For example, hallucinations may be negatively reinforced in some cases through the removal of aversive stimuli/ situations (Heilbrun, Diller, Fleming, & Slade, 1986). Behavioural theories may therefore provide an understanding of how the unique context of being d/Deaf with regards to the individual's environment and learning history may have shaped and maintained these experiences.

What is Known About Hallucinations and Delusions in d/Deaf Persons?

Studies investigating hallucinations with d/Deaf persons are limited and the available research has demonstrated a preoccupation with the sensory modality of hallucinations and whether or not it is possible for a Deaf person to 'hear' voices (e.g., Atkinson, Gleeson, Cromwell, & O'Rourke, 2007; Critchley, Denmark, Warren, & Wilson, 1981; Du Feu & McKenna, 1999; Schonaeur, Achtergarde, Gotthardt, & Folkerts, 1998). Research exploring sensory modalities of hallucinations has found differences in the prevalence of different forms of hallucinatory experiences between deaf and hearing groups, for example; 50% of clinical Deaf samples report visual and somatic hallucinations compared to only 15% and 5% respectively in hearing patients (see Atkinson et al., 2007). Atkinson et al. (2007) found that the perceptual characteristics of hallucinations reflected not only the previous auditory experiences of the deaf participants but also the modality of communication preferences (i.e., BSL, oral etc.) for the individuals. Due to the focus on sensory modalities and whether individuals who were profoundly deaf prior to language acquisition can experience true auditory hallucinations there has not been any rigorous

exploration of issues such as the content and the personal meaning ascribed to these experiences in the context of the d/Deaf person's life.

Research investigating delusional beliefs in d/Deaf persons appears to have received even less attention in the literature. A search of PsycInfo using the terms; Deaf, deafness, hearing disorder, and hearing impairment combined with delusion* and delusional (*indicates truncation) only retrieved papers investigating delusions in the context of late onset deafness/ hearing impairment (e.g., Chae & Kang, 2006; Sommer, Roze, Linszen, & Zanten, 2014). Glickman (2009) provides an account of delusional beliefs in the context of d/Deaf individuals receiving care on Deaf psychiatric units; he reports that delusions of grandeur are common delusional beliefs for this group, based on clinical experience. Examples of known delusional beliefs for d/Deaf patients included a delusion of being a king, being sent special messages or on special missions by God (Glickman, 2009), identifying a possible common delusional theme of being special for this clinical group, however this has not been explored in research studies. The limited literature available on hallucinations and delusions in d/Deaf persons reflects a wider issue that research concerning the mental health of this group is reported to be "… behind hearing mental health research by at least forty years" (Glickman & Pollard, 2013, p360) (see extended 1.5, for an overview of the rationale for a symptomatological approach and extended 1.6 and 1.7 for further discussion and theories of hallucinations and delusions).

Cultural Influences on Delusions and Hallucinations

Hallucinations and delusions are both culturally bound and "pathoplastic," meaning that they are formed through and in local expectation and meaning (Laroi et al., 2014). The content of hallucinations can be seen to differ across different historical periods reflecting the culture of that time (see Mitchell & Vierkant, 1989; Maher & Spitzer, 1993: extended version 1.8). The content and themes of hallucinations and delusions have also been found to differ across different cultures. For example, Kim et al. (1993) found differences in the themes of paranoid delusional beliefs across Asian cultures; they reported that paranoid delusions held by Korean patients concerned themes of rape whereas Chinese patients reported fears of vampires and poisoning. Kent and Wahass (1996) found that the content of auditory hallucinations also differed in patients across two different cultures. There was a greater prevalence of auditory hallucinations with a religious content in Saudi Arabia

patients whereas auditory hallucinations were predominantly described as a running commentary in British patients. Hallucinations and delusions amongst hearing populations have been found to reflect the dominant stereotypes, religious beliefs and concerns of the individual's culture (Kent & Wahass, 1996; Stompe et a., 2006;Yamada, Barrio, Morrison, Sewell, & Jeste, 2006) (see extended 1.8).

The evidence derived from hearing populations, that culture and the local community can influence the content and experience of hallucinations and delusions, identify the need to consider how the culture of the Deaf community may shape and maintain these symptoms. Deaf culture is distinct to the general British culture, carrying with it different beliefs and social rules for living founded in the Deaf community's historical context that may be difficult to understand from a hearing perspective, for example, the historical oppression of the Deaf community by the hearing community (Kitson, Fernando & Douglas, 2000). An example of this is deaf individuals often have a negative view of mental healthcare providers (Glickman, 2008), viewing inpatient units as a place where deaf people are abandoned or may be mistakenly admitted by 'prejudiced hearing authorities' (Steinberg, Sullivan, & Loew, 1998). These beliefs are grounded in historical issues within the deaf community where it was a common experience for deaf individuals to be institutionalised (Glickman, 2008) and feelings of oppression by the hearing society (e.g. the failure of society to recognise BSL as a language in its own right until 2003). Adaptive behaviour has also been argued to differ within the Deaf community, for example disengaging from the hearing world has been suggested to be an adaptive behaviour for Deaf individuals due to the setbacks and humiliation many Deaf individuals encounter in challenging hearing environments (Moore, 2016; Valentine & Skelton, 2007). Furthermore, Deaf individuals may not consider adapting to the majority hearing society as adaptive. Valentine and Skelton (2007) suggested that the norms that are valued by the majority hearing society may have limited relevance to the expectations or aspirations of Deaf young people. With feelings of mistrust and oppression being common themes in the deaf community and different conceptualisations of adaptive behaviour to the general hearing population it is important to explore how these unique experiences and beliefs of the deaf population may influence the nature of delusions and hallucinations in order to inform formulation of these experiences for d/Deaf persons (see extended 1.8 for further discussion).

Rationale and Aims

There is a paucity of research in the area of hallucinations and delusions in d/Deaf persons. The current literature has used nomothetic approaches aiming to identify what is shared among this population and describe the characteristics of hallucinations (e.g., Atkinson et al., 2007; Atkinson, 2006; du Feu & McKenna, 1999). However, there remains to be any exploration of content/ themes of these experiences within the context of the life experiences of d/Deaf persons.

The evidence base of hallucinations and delusions that has been established for hearing persons has demonstrated that experiences of hallucinations and delusions are shaped by the individual's context and culture (e.g. Kent & Wahass, 1996; Stompe et al., 2006). The Deaf community has a distinct culture , carrying with it different beliefs and social rules for living. However there is no research exploring the specific content and themes of hallucinations and delusions for deaf persons despite an understanding that; a) the content of these experiences reflect individual context and culture for hearing persons; and b) the personal meaning ascribed to these experiences (i.e., content reflecting their local culture and community) is necessary to understand the individual's feelings, distress and associated behaviours (Chadwick et al., 1996; Strauss, 1991). A greater understanding of any common psychosocial factors and their role in shaping the content of hallucinations and delusions for Deaf individuals may provide more information about the similarity or diversity of these symptoms to guide clinical practice.

The aim of the current study was to track the developmental nature of hallucinations and/or delusions in a sample of d/Deaf adults, exploring these experiences within the context of unique experiences of being d/Deaf and Deaf culture to answer two research questions:

1. What are the themes, topography and content of hallucinations and delusions amongst a sample of Deaf adults diagnosed with psychosis?

2. How have the themes, topography and content of hallucinations and delusions been shaped by the individual's developmental history and the experiences which are unique to being Deaf and Deaf culture?

(See extended 1.9 for further discussion on the research rationale and aims).

Methodology

[See extended methodology for a detailed description of study design, process and analysis]

Epistemology

The research study is underpinned by behavioural theory and as such the philosophical position falls within the paradigm of pragmatism, more specifically functional contextualism (Hayes, 1993) (see extended 2.2 for further discussion of epistemology).

Case Study Research

Systematic case study research provides a bottom-up approach to evidence based practice (Fishman, 2005) allowing for the investigation of shared themes and processes across cases (Iwakabe, 2005; Iwakabe & Gazzola, 2009) (see extended 2.3 for further discussion of case study approaches). Case study approaches have an evidence base within the literature for investigating experiences of psychosis with deaf individuals (Pederson & Nielson, 2013; Weiler, Landsberger, & Diaz, 2013).

Multiple Sequential Functional Analysis

Multiple Sequential Functional Analysis (MSFA) (Gresswell & Hollin, 1992) was chosen as a structured approach to case study methodology that has been found to be appropriate for assessing an individual's developmental history and behaviour when they have a diagnosis of psychosis (Dawson & Gresswell, 2010). MSFA is a qualitative case history methodology that was developed to understand complex forensic case material to understand the function of behaviour within a developmental context (Gresswell & Hollin, 1992). MSFA is a development of functional analysis, based on the principles of behaviourism. In functional analyses, the presenting difficulty is analysed in the context of the individual's environmental and learning history (Sturmey, 1996). Within a functional analysis paradigm an antecedent, behaviour and consequences (A:B:C) analysis is applied to the behaviour of interest (Bijou, Peterson, & Ault, 1968) (see Extended version 2.4). MSFA extends the typical functional analysis to account for the role of learning on the maintenance of behaviour. Although covert behaviours are distinguished from observable (overt) behaviours, they are viewed to be developed and maintained in the same manner,

through interaction with and reinforcement from the environment and constitute the individual's learning history (Skinner, 1974). Complex chains of behaviours are produced by considering the key learning history in each stage of the analysis resulting in the consequence of one A:B:C sequence becoming the antecedent of a subsequent A:B:C sequence. Therefore, the consequences within each analysis sequence serve as a function to increase or reduce the behaviour of interest through behavioural principles such as reinforcement or punishment. This approach therefore allowed for a detailed assessment of each individual case in order to explore the developmental context of their hallucinations and delusions and how these experiences were shaped through the individual's developmental history (Bywood, Gresswell, Robertson, & Elwood, ., 2006; Corbin & Strauss, 2008).

The triangulation of multiple sources of data is an inherent component of the MSFA methodology to gather data relevant to complex behaviour which has developed over time (Gresswell & Hollin, 1992) and is supported in case study research (Yin, 1994). In the current study the information gathered from the interview process was triangulated with data retrieved from the file review and a professional interview. Triangulation allows for the accuracy of the participant's introspective account to be checked with data from other sources (Webb, 1966; Jupp, 1989) and reduces the possibility of bias (Denzin, 1989). Triangulation provides an approach to qualitative case study approaches that can add to the richness of qualitative data concerning complex human experiences (Emerson, 1981) (see extended 2.10 for further discussion of approaches taken to ensure trustworthiness).

Participants

The sample comprised of three participants, all participants were men aged 37-51 years, pseudonyms have been provided to protect the identity of participants; Ben, Michael and Aiden (see Table 5 for demographic information).

Specialist Deaf mental health services were contacted and invited to be involved in the study, however, difficulties in the recruitment process meant that all three participants were recruited from a secure specialist Deaf service, meaning that the participants had an offence history. Inclusion criteria consisted of women and men aged over 18 years with a diagnosis of any psychosis disorder and self-reported experiences of hallucinations and/ or delusions. Participants were required to use BSL as their primary mode of communication

and have a prelingual deafness. These criteria were decided upon as the researcher was interested in the influences of being Deaf, with regards to Deaf identity and culture, on the content of hallucinations and delusions. All participants were considered to have capacity to consent as assessed by their professional lead (extended 2.7). Exclusion criteria consisted of individuals who did not have a diagnosed profound and prelingual deafness.

A sample size of three participants is supported by the existing literature of studies employing MSFA that has established the efficacy and appropriateness of using small sample sizes (Dawson & Gresswell, 2010; Gresswell & Hollin, 1992; Mappin, Dawson, Gresswell, & Beckley, 2013). Arguably the amalgamation of multiple interviews and detailed file reviews provides MSFA with the quality and credibility achieved by other qualitative approaches which traditionally have larger samples but only single interview sessions (see extended 2.5 and 2.6 for further information regarding participants and how they were recruited).

Table 5:

Participant summary

	Ben	Michael	Aiden
Age	51	38	37
Deafness	Profound bilateral deafness diagnosed aged two years secondary to meningitis.	Profound bilateral deafness identified aged three years.	Profound prelingual bilateral deafness diagnosed aged two years. He was fitted with a cochlear implant aged 12 years which he stopped wearing the external piece to aged 22 years.
Language	Primary language is BSL- first learned at school aged five years.	Primary language is BSL- learned in residential care aged 3-6 years.	He communicates using BSL in addition to lipreading/ speech.
Diagnosis	Paranoid schizophrenia	Schizoaffective disorder- manic type	Paranoid schizophrenia.
Hallucinations/ delusions	Hallucinations reported included; voices inside his head and emanating from his stomach. Other hallucinations reported include hearing keys inside his head, when he was in prison reported hearing	Hallucinations reported include; voices, visual hallucinations of moving pictures related to religion and god and a visual hallucination of a face. Hallucinations were reported to	Hallucinations reported include; voices, screeching noises and visual hallucinations of distorted shapes and spirits. Delusional beliefs reported include

	keys being jangled in a teasing manner- although he described he could 'feel' the keys rather than hearing and so no auditory experiences reported. No specific delusional content reported beyond paranoia.	be feelings or images and not true auditory hallucinations of voices. Delusional beliefs included being paranoid that people were colluding against him and delusions of grandiosity.	being paranoid, specifically related to being followed and a government conspiracy to control him via his cochlear implant. Grandiosity was also reported concerning scientific inventions and being a model.
Index Offence	Attempted murder and robbery possessing a firearm.	Manslaughter (due to diminished responsibility) and grievous bodily harm.	Attempts to make explosives with intent to bomb the audiology department.

Data Collection

Three sources of information were obtained for each individual. The primary data was collected by completing two interviews with the participant, this was then triangulated with supplementary data from a file review and a supporting interview (see extended version 2.8 for additional information on the data collection process).

Participant interviews. Participant interviews were completed by the lead researcher, supported by a BSL interpreter (see extended 2.9 for a discussion of issues related to using an interpreter). The interviews were semi structured and completed over two one hour sessions per participant. The interviews explored the individual's current experiences and developmental history of hallucinations/ delusions to provide the framework for an MSFA analysis (Mappin et al., 2013). The interviews also explored the participant's developmental history across all areas to allow for sufficient information to generate a detailed case formulation across the participant's lifespan (Sturmey, 1996; 2008). Areas explored through the interview guide (Appendix 11A) included; childhood, education, friends, family and intimate relationships. Identified psychosocial factors from the existing hearing literature (e.g., trauma), where relevant to the individual's experiences, were explored in detail and individual's exposure to the deaf community/ deaf culture and BSL was also explored to understand their relationship to the individuals experiences hallucinations and delusions.

Supporting interviews. Participants were each asked to identify either a professional or relative who had a good knowledge of their history for a supporting interview. Each participant identified their consultant psychiatrist as the professional they wanted to complete the supporting interview, all participants had the same consultant psychiatrist and so one professional completed all the supporting interviews. One hour was allocated for each interview (interviews ranged from 30 minutes to one hour). The professional interview was semi-structured (see appendix 11B for the interview guide) and was adapted based on each participant's working MSFA analysis from their participant interview (i.e. areas that needed clarification or arising issues from the participant interviews were identified for further exploration).

The culmination of the interviews with the participants and the supporting interview resulted in 2.5-3 hours of interview data per participant.

File review. The information from the interviews with the participant and their identified professional was triangulated with a file review of the individual's clinical records to gather collateral information about the individual's hallucinations and delusions (i.e. type, content, severity and onset) and any significant events reported in the interviews (e.g. a disclosure of rape). There was a vast amount of documents and records about each participant due to the number of years that they had been within secure psychiatric services, a total of 113 records were reviewed across the cases (see Table 6 for a summary of documents reviewed).

Table 6

Summary of documents reviewed

Ben	Michael	Aiden
CPA reports* (12)	CPA reports (14)	CPA reports (8)
HCR-20 V3** (2)	Psychiatric discharge	Case summary (1)
Social inquiry report (1)	summary (1)	HCR-20 V3 (2)
Psychology reports (9)	HCR-20 V3 (2)	Psychology reports (9)
Psychiatric reports (6)	Psychology reports (11)	Psychiatric reports (7)
Tribunal report (2)	Psychiatric reports (8)	Nurses report (4)
Nurses reports (6)	Nurses reports (5)	Tribunal report (1)
PBS plan (1)	Inquiry report (1)	

*Note. *CPA reports refer to reports produced by professionals for meetings regarding patients who treated under a Care Program Approach (CPA).** The HCR- 20 V3 is a structured risk assessment of historic, current and future risk of violence.*

Data Analysis

There were two stages of analysis; the first stage was an analysis of the individual case histories. Cumulative information gathered for each individual was used to develop a coherent narrative of the participant's developmental history. MSFA sequences were developed to allow for an idiosyncratic developmental formulation of the experiences of hallucinations and/or delusions for each individual. Any identified discrepancies between data sources were scrutinised by objective reviewing of all available data to establish the account which was considered to either be the most consistent or was supported by

collateral information/evidence. Regular discussions with research supervisors were held throughout the analysis process in order to reduce the potential for researcher bias.

The second stage of analysis involved an across-case analysis to identify similarities and diversities within the sample in order to provide an understanding of any common factors. Inductive thematic analysis (Braun & Clarke, 2006) was conducted to provide a systematic framework for identifying common themes across the MSFA sequences. Braun and Clarke's (2006) six stages for thematic analysis was followed for the process of identifying, analysing and defining themes across the data set; i) familiarizing yourself with your data; ii) generating initial codes; iii) searching for themes; iv) reviewing themes; v) defining and naming themes; and vi) producing the report. Although these stages are presented as a linear process, the thematic analysis involved a process of moving back and forth between the phases (Braun & Clarke, 2006) (see extended 2.11 for further information on the thematic analysis).

The MSFA sequences were also reviewed across the participants to further explore how the identified themes related to experiences of hallucinations and delusions across the developmental histories.

Ethical approval

The study was granted ethical approval by the host university, and NHS Research and Ethics Committee (see extended 2.1).

Results

Stage 1: Individual Analysis of Learning Histories

A total of 20 MSFA sequences were created, the number of sequences generated depended on the different developmental phases for each individual identified though the data (six for Ben and seven for both Michael and Aiden). The MSFAs identified key influences for each participant. For the purpose of this paper three MSFA sequences have been selected (Tables 7-9: see extended version 3.1 for the full analyses and detailed individual narratives) to highlight the development of external attributional styles leading to increasing paranoia, helplessness or grandiosity (depending on the individual) through reinforcement and punishment contingencies.

An overview of the individual cases is first provided before presenting the MSFA sequences and summaries. Covert and overt behaviours have been separated in the sequences for pragmatic reasons despite these being considered to be parallel events (Skinner, 1974). Overt behaviours have been presented following covert behaviour for ease, this does not suggest any causality or that internal events are separate to external events (see extended 2.12 for an overview of behavioural processes and terminology).

Overview of the individual cases. Ben's MSFA sequences identified a sense of persecution and powerlessness developing throughout his life that had been shaped by his experiences of disadvantage and discrimination in relation to his deafness. His exclusion from family life due to communication barriers could also be considered to have shaped his sense of paranoia and suspicion in relation to his belief that he is ignored.

Michael's MSFA sequences identified grandiosity, suspicion and feelings of persecution that developed throughout his life. Michael's experiences of being disadvantaged and victimised in addition to his conflict about which group he belongs to (Deaf or hearing) appeared to shape his paranoia in relation to delusions of persecution and collusion against him. Furthermore, his association of deafness with disability and perception of being deaf as being weak and inferior appeared to shape his delusions of grandeur as these reflected themes of being special and may have served to protect him from feelings of being inferior.

For Aiden, grandiosity developed throughout his life, specifically in relation to inventions and having superior knowledge to others. This could be understood to have been shaped through his experiences of being involuntarily grouped with other deaf individuals who he perceived as having a lower intelligence or communication proficiency than him. His delusions of grandeur therefore served to protect his self-concept and disconfirm worries of being stupid. By contrast, his paranoia and sense of persecution appeared to have been shaped by experiences of disadvantage, physical abuse and being raped. His experience of being fitted with a cochlear implant, the rejection he experienced from the Deaf community following this, and his perception of not being supported with his device appeared to be important in the shaping of his paranoia and delusional beliefs specifically about his cochlear implant and society being against him.

Table 7

Functional analysis sequence one: School

Ben	Michael	Aiden
Antecedents Attends Deaf residential school aged five years. He struggles in the oral classes and is placed in the remedial (sign based class) and is exposed to communication and interaction with deaf children for the first time.	**Antecedents** Attends Deaf residential school. He is placed in a unit for profoundly deaf children but the other students also have physical difficulties.	**Antecedents** Attends mainstream schools with support. He is bullied by hearing peers at school who call him "Deaf lugs". His only friends at school are the other two deaf children.
Behaviours ***Covert-*** Belief that it is unfair that he has to attend a residential school due to being deaf and that he is treated differently to his hearing siblings. Sense of helplessness about being sent away; 'I am deaf that is just the way it is'. Feels powerless. Views signing as inferior and associated with stupidity. ***Overt-*** He establishes a role as being mischievous at school, increasing his social interactions with peers. He starts misbehaving such as writing on the board. In contrast, he withdraws and isolates himself when	**Behaviours** ***Covert-*** He feels upset that he has to go away to school and his siblings did not because they were hearing. Feels unequal to his siblings. He is confused at school and worries the other students are colluding against him. He does not want to be seen as a deaf boy, he wanted to be like 'ordinary boys'. ***Overt-*** He develops BSL skills and can	**Behaviours** ***Covert-*** He feels different and does not feel accepted in hearing environments. He enjoys being able to talk to his deaf friends and not missing out on conversations but resents only being able to make friends with the other deaf children and thinks they are "a bit thick". ***Overt-*** Withdraws and develops an interest in science to escape being bullied.

at home, spending increasingly more time in his bedroom.	communicate better with deaf peers.	
Consequences Gets into trouble at school which contrasts to his home environment where he never got in trouble due to limited interaction and communication barriers. To get into trouble was seen as good/ powerful by peers.	**Consequences** The language barrier between Michael and his family increases, his family cannot communicate using BSL.	**Consequences** Extra science activities remove opportunities to be bullied.
Key Learning • Life is unfair (being treated differently to siblings). • Signing is inferior to oral communication; signing means I am less able. • Getting attention from being in trouble is better than nothing. • Hearing people have it easy.	**Key Learning** • Life is unfair (being treated differently to siblings). • Other deaf children are disabled, being with other deaf children risks being seen as disabled. • To be deaf is to be inferior and unequal. • Being deaf means being different including from family.	**Key learning** • To be deaf is to be different. • Being with hearing children risks being bullied and rejected. • Being with other deaf children risks being seen as stupid. • Science keeps me safe.

Table 8

Functional analysis sequence two: Early onset of psychosis

Ben	Michael	Aiden
Antecedents He is isolated in prison and he is not provided with communication support.	**Antecedents** Witnesses a car of "youths" attempt to run over his brother.	**Antecedents** The audiology department are unable to see him when he goes to the service without an appointment and staff ask him to leave.
Behaviours ***Covert-*** Onset of voices that are experienced as powerful, strong, angry and horrible towards him (teasing him), emanating from his stomach. Believes the voices were prison officers telling him that he is "bad" and that "they do not like him". Feels paranoid. Is fed up of being in prison but feels safer in prison. ***Overt-*** establishes coping strategies whereby he shouts back and swears at the voices, breaks things and bangs his head. Attempted to spit the voices out. Informs professionals he is feeling isolated.	**Behaviours** ***Covert-*** He becomes very upset, anxious and "paranoid" about people outside. Feelings of "powerlessness of being able to retaliate". Wishes to succeed and believes wrestling will help him achieve success. ***Overt-*** He withdraws and locks himself in his bedroom and watches an increasing amount of wrestling. He goes to a wrestling event with a packed bag and an out of date passport in an attempt to convince the wrestlers to take him to the USA with them to become a wrestler. When he is sent home	**Behaviours** ***Covert-*** Feels angry that the audiology department did not help him. Delusional belief that the government want to control him through his cochlear implant. Believes "Society isn't treating me right" and thinks that "if I blow up the implant service people will know I want my implant out". ***Overt-*** Stops using his implant completely. Attempts to make a bomb in his bedroom.

	by security he blames his parents and throws a brick through the window of his family home.	
Consequences Distress is reduced through coping strategies (e.g. head banging). He is referred to psychiatry. He is offered poor communication support. **Key Learning** • It is not worth asking for help it will not be provided. • Others will not adapt, deaf people are expected to adapt for hearing people. • The world is a lonely place if you are deaf. • Coping strategies (banging head etc.) can help reduce negative feelings.	**Consequences** He is arrested and admitted to a psychiatric hospital. **Key Learning** • The world is a scary place. • Others prevent possibilities for success.	**Consequences** He is arrested and admitted to a psychiatric service. **Key learning** • It is not worth asking for help it will not be provided. • Violence is the only way to be heard. • Society is against deaf people.

Table 9

Functional analysis sequence three: Experiences of secure psychiatric services

Ben	Michael	Aiden
Antecedents He is admitted to a secure psychiatric service for the first time and the ward regime is different to prison.	**Antecedents** Admitted to a high secure psychiatric service and diagnosed with schizoaffective disorder. He is challenged by staff.	**Antecedents** Admitted to a psychiatric service and diagnosed with paranoid schizophrenia. Other patients ask him personal questions.
Behaviours ***Covert-*** Feels angry and restless in relation to the voices. Feels powerless in high secure services because it is harder to avoid staff and other patients. Thinks he is being ignored by staff and treated as though he is less important. Increased suspicion towards staff and anger. ***Overt-*** Discloses experiences of voices for the first	**Behaviours** ***Covert-*** Perceives staff as being cruel towards him, getting on at him and he believes that he is being targeted and discriminated against. He believes that staff are unsupportive and that they are deliberately trying to get him into trouble. Belief that he could be famous and write a book about himself. ***Overt-*** He makes threats of violence to staff and patients who he believes are persecuting him.	**Behaviours** ***Covert-*** He thinks the other deaf patients are "dumb and useless". Believes he has an idea of how to change the way that the world exists. ***Overt-*** He withdraws from other patients. He informs people of inventions he would like to patent. He seeks out unusual topics to read and learn.

time. Isolates himself and has minimal communication which often had to be initiated by staff. **Consequences** He is diagnosed with paranoid schizophrenia and provided with medication and receives increased support. **Key Learning** • Committing a serious offence means increased support. • Telling professionals about voices leads to medication.	Increase in grandiose comments about being famous, writing a book about himself, becoming a BSL presenter for parliament and gaining a masters degree. **Consequences** Increased input from staff. **Key Learning** • Others prevent possibilities for success. • It is not worth asking for help it will not be provided, people will not support me but being aggressive gets more support.	**Consequences** Other patients cannot communicate with him about his interests and interact with him less. **Key learning** • Being deaf risks being seen as stupid and less able. • Knowledge about science that others do not understand means intelligence and prevents being seen as stupid. • Interest in science and unusual topics keeps other patients away.

School. Ben's experience of having to go to a residential school led to the development of a sense of being disadvantaged against feeling helpless and furthermore the belief that this is because he is deaf and hearing people are lucky by comparison. Ben developed a relational frame within which deafness was paired negatively with stupidity during this period. A relational frame refers to the pairing of stimuli whereby connections are derived between the stimuli that have the ability to change the nature or function of the stimuli (Hayes, Barnes-Holmes, & Roche, 2001). Ben paired deafness with stupidity after he was placed within the remedial (sign based) class associating needing to use sign language as lesser than being oral and subsequently he appeared to develop a conflict about his identity in relation to his deafness and belonging to either the deaf or hearing communities. This conflict may have been further influenced when his increased social interaction with his deaf peers was punished; Ben developed a social role with his peers as being the mischievous one however, this led to being disciplined when he went against school rules.

Michael's experience of his peers at school either being profoundly deaf as he was but also physically disabled or hearing impaired but of the same physical ability as him influenced the development of a relational frame in which deafness and disability were paired. As a result of the perceived injustice and disadvantages Michael experienced because he was deaf (e.g. having to go to a residential school) he developed a sense of being a "misfit" and an external attributional style and sense of powerlessness/ helplessness.

Aiden did not go to a residential school for deaf children and was educated in a mainstream school with only two other deaf children. Aiden's experiences at school influenced the development of a relational frame within which deafness was paired with stupidity due to his perception that the other two deaf children at his school were "a bit thick". He also developed a sense of powerlessness related to being targeted and vulnerable after being bullied about his deafness and blamed his deafness for these negative experiences. His interest in science was negatively reinforced through the removal of the perceived threat of being bullied and disconfirmation of his worries of being perceived as a stupid deaf person. His experiences at school therefore created the foundation of specialist knowledge in science as a protective factor which later developed into grandiosity and delusions of special knowledge and invention.

Early onset of psychosis. The sense of being disadvantaged that was developed in Ben's earlier childhood experiences was strengthened during this phase. Ben's experiences of voices as powerful and angry reflect his increased sense of powerlessness and injustice/ disadvantage related to being a deaf man. At this point in time his anger and perceived disadvantage was related to the prison staff not making an effort to meet his needs. When he informed the staff that he felt isolated the prison suggested he improved his ability to communicate with another deaf prisoner rather than adapting their ability to communicate with him. His experiences of voices can therefore be considered to have been shaped by his context at this time. The poor support provided and negative affect he experiences in relation to his attempts to seek help being unsuccessful decreases future help seeking behaviour through punishment and leads to the development of passivity and learned helplessness.

Michael's sense of being targeted that was developed in his earlier childhood experiences was positively reinforced when he was out with his brother and a car attempted to run his brother over. He developed a passive response by withdrawing and locking himself in his bedroom and his sense of helplessness increased. The development of grandiosity appeared to be shaped by his context as he attempted to protect himself from a continued sense of failure and low self-concept by viewing himself as special and locating blame for his failure to achieve success externally as the world was holding him back. His external attributional style therefore increased as he specifically blamed his family for his failed attempt to become a wrestler.

Aiden's delusions appear to have been shaped by his sense of paranoia and disadvantage related to his cochlear implant making him identifiable as a deaf man and preventing him from finding employment, reinforcing his perception of being targeted and disadvantaged against. His sense of being unsupported and abandoned was reinforced by his experience of a lack of support from services influencing the development of beliefs of persecution and being disadvantaged and discriminated by society. His learned helplessness appeared to develop at this time when his first attempt to seek help was unsuccessful and he believed that seeking help is pointless.

Experiences of secure psychiatric services. Following Ben's admission to a psychiatric service he experienced increased suspicion that was related to feeling ignored

by staff which made him think that people did not like him, a concern that was reflected in the content of his voices. This appeared to reinforce the sense of paranoia and suspicion in relation to his belief that he is ignored that he had developed in his earlier childhood due to communication barriers in the family home environment.

Michael appeared to have a sense of being discriminated against by staff and associated paranoia, reflecting a continued theme of feeling targeted and disadvantaged/ discriminated against that had been present throughout the previous MSFA sequences. His paranoia about being targeted was positively reinforced by the change of behaviour of staff towards him. As feelings of persecution (being discriminated against) increased so did his grandiosity.

Aiden's admission to a Deaf psychiatric service meant that he was immersed in a d/Deaf environment for the first time in several years. The impact of this was the reinstatement of the negative pairing of deafness with stupidity that he had made during his earlier childhood. This was because he viewed the other patients to have a lower level of signing proficiency than he did. His interest in science, inventions and unusual topics increased his sense of difference to the other patients as they were unable to understand or talk about these areas. This behaviour is negatively reinforced as his worries reduce about being associated as the same as the patients he believed to be stupid. He appeared to interpret his isolation from the other patients as being special, this therefore reinforced his grandiosity.

Stage 2: Across Case Analysis

The thematic analysis identified seven key themes (see table 10: see extended 3.2 for a detailed discussion of the thematic analysis). By reviewing the MSFA sequences across the participants it was identified that the themes were present throughout their life and learning history and were seen to interact with the delusions and hallucinations through reinforcement contingencies such as positive and negative reinforcement and punishment.

Table 10

Summary of key themes dervived from the thematic analysis

Theme	Subthemes	Description
"I am deaf that is just the way it is"	Learned helplessness Powerless ness	This theme concerns the sense of powerlessness experienced by all participants due to limited control in their lives or opportunities to express their needs and how this influenced a learned helplessness.
Caught between two worlds	Rejection Misfit Identity conflict Belonging in the Deaf community	This theme reflects the participants conflict about where they belong in their family, hearing and d/Deaf groups, rejection that they experienced by others and their own rejection/ acceptance of deafness.
"society is not treating me right!	Deaf versus hearing Disadvantaged Discriminated Injustice Inequality/ inferiority Lack of support	This theme concerns experiences of discrimination and being discriminated against by individuals but also at an organisational level with regards to barriers to accessing equal services to hearing peers.
Victimisation	Abuse	This theme concerns experiences of being bullied and abused and a sense of

	Bullied Victimhood Targeted Vulnerable Suspicion	vulnerability related to participants perceiving themselves as an “easy target” because they are deaf and therefore perceived as weak.
Language factors	Shattered expectations Confusion Communication barriers Lack of access Imposed expectations	Language factors span communication barriers, expectations about how they should communicate/ interact with hearing individuals and how this ifnluenced a sense of confusion as well as shattered expectations about how they would be able to succeed in a hearing world.
Service issues		Service issues reflect the participants experiences of barriers to services from childhood through to the present and how the medical model of forensic services may have impacted on their development of a framework for understanding their experiences of hallucinations and delusions.
Common factors	Financial difficulties Substance use No support system Isolation Abuse	Common factors reflects issues that are shared psychosocial factors to hearing individuals and identified stressors from the literature, not unique to deafness.

The across-case analysis identified four important factors. Firstly, there were a number of common themes that were seen to interact with deafness (e.g. powerlessness and victimisation); however these themes appeared to have influenced experiences of hallucinations and delusions through more general psychosocial mechanism (e.g. social defeat). Secondly, there were themes identified across all the participants that related specifically to unique experiences of being deaf (e.g. communication barriers and lack of access to services), however these themes were not found to influence the content of the participants hallucinations from the information available.

The third factor represents a common experience that was identified in the across-case analysis regarding the subtheme of identity conflict. By reviewing and comparing the MSFA sequences it was identified that all participants had made a negative pairing of deafness during their schooling that appeared to have influenced an identity conflict. Furthermore, the negative pairings of deafness and the associated identity conflict may have influenced delusions of grandeur related to special abilities/knowledge.

The final factor identified in the across-case analysis was that there was a distinct lack of information regarding the content of hallucinations and delusions for all of the participants. It was therefore not possible to develop hypotheses related to how their voices have been shaped by their context and developmental history. It is possible that the lack of information regarding content was further compounded by difficulties encountered during the analysis process in relation to missing information and inconsistencies/ incoherence in the narratives of participants. The across-case analysis identified that psychological interventions were predominantly group based with different psychoeducational remits. Although all the participants had received individual psychological interventions this appeared to focus on their offence behaviours and their experiences of hallucinations and delusions did not appear to have been explored. The apparent limited exploration of hallucinations and delusions within the psychological process may have also contributed to the lack of information regarding the content of these experiences.

Discussion

The current study aimed to explore hallucinations and delusions within the context of unique experiences of being d/D and Deaf culture. The findings indicate that the individual's learning histories shaped their experiences of delusions, furthermore specific experiences of being d/Deaf were also found to influence the themes and content of delusional beliefs in

relation to negative parings that the participants had made of deafness with disability/stupidity. The individual's language history appeared to influence the topography of their hallucinations; however, there was no evidence of unique experiences of being d/Deaf or Deaf culture influencing the content of hallucinations.

The study was able to identify the topography of hallucinations and a limited depiction of common themes; however, this was limited by a lack of content available regarding hallucinations. There was greater information regarding experiences of delusions; the findings identified a common theme across the participants of paranoia related to being targeted or disadvantaged and a theme of having special abilities/ knowledge for two of the participants (Michael and Aiden) in relation to delusions of grandeur. This reflects Glickman's report that delusions of grandeur concerning being special are common delusional beliefs among d/Deaf persons in Deaf psychiatric units (Glickman, 2009). Yamada et al. (2006) identified different themes of delusional beliefs that were most common amongst different cultural groups; it is possible that grandiose and persecutory delusions are the common themes experienced by d/Deaf persons; however, further research exploring this hypothesis is needed.

With regards to the second research question, it was possible to assess how the topography of hallucinations had been shaped by the individual's developmental history and experiences which are unique to being d/Deaf and Deaf culture. The form voice hallucinations were found to relate to the individual's language and communication history as found by Atkinson et al. (2007). The experience of voices matched the participants' communication history; Ben and Michael experienced voices as bodily sensations and visual images, Aiden was the only participant who reported auditory hallucinations, reflecting his hearing/ language history. It appears that it was primarily the individual's language and communication history that shapes their experiences of hallucinations in terms of topography.

There was evidence of delusions being shaped specifically by experiences that were unique to being d/Deaf and Deaf culture. The delusions of grandeur held by Michael and Aiden concerning special abilities appeared to be linked to their fight against being perceived as stupid or weak related to the negative pairings that they had made in regards to deafness (see extended 4.1 for further discussion). The paranoid delusional beliefs that Aiden held concerning the government conspiring to control him through his cochlear implant demonstrated the greatest link between unique experiences of being deaf shaping the content

of a delusional belief. This delusional belief appeared to have been shaped by; his experience of rejection from the Deaf community after he was fitted with the device, his perception of being recognised as a deaf person because of the scar, attribution of blame towards the device for not being able to find employment and perception of being unsupported by hearing services.

There was no evidence that hallucinations had been shaped by unique experiences of being d/Deaf or Deaf culture. The interaction of deafness for the participants' experiences of hallucinations was predominantly in the context of victimisation and social disadvantage, for example voices were experienced as "derogatory", "negative" and "embarrassing and personal" indicating that the participants learning histories of being humiliated, discriminated against and targeted may have shaped the voices content through positive and negative reinforcement contingencies. However, victimisation and social disadvantage are common psychosocial stressors that are shared with the hearing population and not unique to being d/Deaf. Research has found that stressful life events including victimisation and social defeat are associated with increased incidence of psychosis (Bebbington et al., 2004; Lataster et al., 2006; Selten & Cantor-Graae, 2005; Thompson et al., 2014). It may therefore be that experiences of being d/Deaf in the context of hallucinations can be best understood within the Stress Vulnerability Model as psychosocial stressors (Zubin et al., 1983).

However, due to the difficulties encountered during the analysis process, it cannot be determined whether deafness and Deaf culture did not influence the content of hallucinations or whether this content was missing.

Lack of Content Specificity

Arguably the greatest finding of the current study was that the content of hallucinations and their cultural/ personal meaning was missing for all three participants, beyond simple descriptions of being derogatory and embarrassing etc. Difficulties in accessing content encountered during the interview process related to missing information and inconsistencies/ incoherence in the narratives of the participants were also documented in their records as difficulties observed by professionals during their time in psychiatric services indicating that this was not a direct result of the research interview method. This finding raised the questions of whether deafness impacted their ability to access and communicate their internal experiences and how have psychiatric services supported or restricted participants' abilities to understand and express these experiences.

The researcher proposes two possible factors for the finding that there was limited information regarding the content of hallucinations for the participants; i) difficulties in time perception, understanding abstract concepts and organising narratives associated with deafness impedes the assessment of the content of hallucinations and delusions using traditional assessment and interview processes; and/or ii) language deprivation/ communication barriers and the structure of care provided by secure psychiatric services has impacted their ability to develop a framework for understanding and communicating their internal experiences.

Abstract concepts, time perception and narrative construction. With regards to the finding that the content of these experiences was missing from not only the participants' accounts but also the professional and file review data; it is possible that this is due to such experiences being based on abstract concepts that the participants may have difficulty in expressing their internal experiences. This finding is supported within the educational based research that has identified that deaf and hard of hearing children have difficulties in understanding abstract concepts (Flately & Gittinger, 1990; Marschark, Lang, & Albertini, 2002; Passig & Eden, 2000; 2003).

The limited information available on content may also have been impacted by difficulties in constructing and sequencing narratives. Research has found that difficulties in time perception and organising a coherent narrative are common difficulties for deaf children (Kaiser-Grodecka & Cieszynska, 1991; Marschark et al., 2002; Pakulksi & Kaderavek, 2001). However, it is unknown how these abilities may develop as deaf individuals enter into adulthood and acquire more life experiences and language. It is therefore unclear how the identified process related issues may have impacted on the data collection and analysis of content (see extended 4.2 for a more detailed discussion).

Framework for internal experiences. It is possible that the difficulties in providing context and being able to describe internal experiences is a result of language deprivation and communication barriers during childhood that resulted in Ben and Michael not learning about theirs or others thoughts and emotions. As a result they may not have developed a framework to understand these experiences or to communicate their internal states to others. Skinner (1957; 1974) outlined the importance of language and communication in order for individuals to learn the importance of their behaviours (including thought and emotions) and to develop

self-descriptive behaviours of communicating inner experiences based on the responses of others.

However, the finding that accessing the content of these experiences was not possible despite the individuals' current communication ability and communication history indicated that there may be additional factors limiting the access to content. It is proposed that the shared experiences of being in offender systems that are structured by the medical model may have played a role in the continued limited understanding and communication of content due to these experiences not being explored. The medical model focuses on the presence/ absence of symptoms within a diagnostic category and therefore reduces the need to explore the individual meaning and content of the hallucinations and delusions. Furthermore, the secure psychiatric services focussed care provision, with regards to psychiatric and psychological input, on offence behaviours. For example, on reviewing Michael's psychiatric and psychology reports it was found that there had been a focus on his offence behaviours rather than his experiences of, and distress related to, hallucinations and delusions. The structure and focus of the psychiatric services in which the participants were receiving care could therefore also be considered to have prevented the development of a framework to understand and communicate their experiences. Previous research with hearing participants who hear voices has indicated dissatisfaction with the limited range of frameworks facilitated by mental health services through which they can understand their voices, with an emphasis on the medical model (Coffey & Hewitt, 2008). It is unclear whether Deaf individuals in secure services share these views (see extended 4.3 for further discussion of issues related to the lack of content specificity).

It is important to note that the file reviews identified that all participants had been assessed to have normal cognitive functioning. Therefore the finding regarding participants' difficulties in communicating their internal experiences should not be attributed to any intellectual disabilities and the difficulties encountered in the current study are the result of a factor separate to an explicit cognitive impairment.

Limitations

There were a number of limitations to the study. Firstly, difficulties in recruitment resulted in all participants being recruited from a secure service; the sample therefore does not represent the general d/Deaf population but specifically a d/Deaf, secure psychiatric, offender population. As a result of the sample bias to an offender group, the results cannot be

considered to reflect Deaf individuals who experience psychosis more broadly. Whilst the complex offender sample in the current study is not representative of the general Deaf population, the participants are individuals who have been heavily observed in psychiatric services over a period of 13-25 years. It should be noted that there was a detailed history and context surrounding all offence behaviours for the participants. This supports the hypothesis that participants are able to provide a greater level of contextual information when this is supported by professionals, enabling them to develop a framework for understanding and communicating the behaviour within context (see extended 4.4 and 4.5 for further discussion of offence behaviours and limitations). Furthermore, all participants were male; the male sample bias means that any unique experiences of Deaf women have not been accounted for within the current study. Whilst the experiences of being d/Deaf accounted for in the current study (e.g., going to a deaf residential school and not being able to communicate with family) and would be thought be general experiences for both men and women who have grown up deaf there may be additional experiences for d/Deaf women that are not accounted for in the current study.

The use of an interpreter brings with it several issues: confidentiality, reliability of translation and defining the roles of the interpreter and researcher. Despite the limitations of using interpreters, research in minority communities has established the use of interpreters with other cultures and has demonstrated the ability to conduct successful qualitative research with interpreters (Kapborg, 2000; Pavlish, 2005; Woo & Twinn, 2004). Methodological recommendations for qualitative research with interpreters were followed to strengthen the trustworthiness of the data, including establishing the translator's qualifications/ prior experience, confidentiality and their role within the process (Squires, 2009).

Clinical Implications and Future Research

This study has been able to contribute to the limited literature for the Deaf population and has identified MSFA as a feasible method of analysis for research with Deaf clients. A number of clinical implications and areas for future research were identified through the process related issues encountered in this study (see extended 4.6 for a detailed discussion).

The finding that there was a considerable lack of information regarding the content of hallucinations for all three participants in the study highlights an important issue in the current psychiatric care provision for d/Deaf persons. It is generally accepted in mental health of hearing persons that an individual's feelings and associated behaviours are thought to

reflect the content of hallucinations and it is through the content and individual meaning assigned to these experiences that otherwise incongruous responses and behaviour can be understood (Chadwick, Birchwood, & Trower, 1996; Strauss, 1991). A clear clinical implication was therefore identified that; we need to better understand how to support d/Deaf individuals in psychiatric services to understand and communicate their inner experiences. Without procedures and practices that allow for content to be accessed, d/Deaf persons' feelings, distress and behaviours related to their experiences of hallucinations will continue to lack contextual understanding for professionals supporting these individuals. Chadwick et al., (1996) argue that this knowledge of the individual's beliefs and personal meaning assigned to the hallucinations is vital information in order to understand and effectively treat their difficulties, highlighting the current limitations in therapeutic intervention for d/Deaf persons. If clinicians cannot develop a contextual framework for the individual's experiences that acknowledges; the content, their culture and community then person-centred care may be limited for these d/Deaf persons.

Furthermore, the finding that content was difficult to access not only by the researcher but also by professionals that had been involved in their care spanning 13-25 years, indicates considerable implications for the assessment and diagnosis of psychosis in this population. This study identified that there were clear barriers to the assessment of hallucinations for the participants. Typical assessment measures are highly verbal and have been standardised on hearing populations meaning that for clinicians working with d/Deaf sign language users there are a limited number of assessment measures that have been adapted for this client group, meaning that clinicians already have limited resources to draw on (Pederson & Nielson, 2013). Therefore, any further difficulties in being able to gather detailed information about the individual's experiences of hallucinations would be assumed to have a considerable impact on their ability to accurately diagnose a psychosis disorder. This may account for the fact that Deaf individuals are most likely to receive the diagnosis of a psychotic disorder unspecified than any other psychotic disorder, demonstrating the difficulty for clinicians in assessment and diagnosis in the Deaf clinical population (Cole & Zdanowicz, 2010).

A further significant implication for assessment, for the participants in the current study, related to the assessment of risk. It appeared that their experiences of hallucinations and delusions were related to their offence behaviours. Without a detailed understanding of these experiences of hallucinations and delusions and their specific content, the ability to accurately assess risk of future offending therefore appears to be limited.

These findings have identified three recommendations for future research. Firstly, this study would benefit from being replicated with d/Deaf persons from non-secure psychiatric services due to the current sample being representative of a d/Deaf offender population. With regards to the finding that content was difficult to access during the research process and there was a lack of documentation of content across the participants' psychiatric records spanning 13-25 years, the research proposes two areas of research. Research comparing the care provision for hearing and d/Deaf psychiatric inpatients with regards to the type of interventions provided would be a valuable area of investigation. There are different recommendations for psychological therapy for d/Deaf persons and so research should not concern whether hearing and d/Deaf persons receive the same intervention but rather whether both groups have the same opportunities to receive the recommended intervention for their difficulties and needs. Finally, research is needed investigating the impact of difficulties in time perception and constructing a narrative on the therapeutic process for d/Deaf adults. Research in this area is important to identify to what extent these difficulties continue and develop in adulthood as the evidence at present is based on deaf children from an educational perspective. Research investigating the impact of these difficulties with regards to constructing a narrative in the therapeutic process could identify recommendations that would support clinicians to be able to access content and help clients to construct their life history collaboratively in the best approach possible.

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Extended Paper

Literature review

1.1: Models of Deafness

The term ‘deafness’ is often used as a blanket description of all types of hearing loss, from mild acquired to profound congenital deafness. However, individuals may relate to their deafness in various ways depending on the perspective of deafness held by the individual and how this may influence the development of a cultural identity in relation to their deafness. There are two primary models of deafness; the medical model and the cultural model. According to the medical model of deafness, being ‘deaf’ (lowercase) is viewed as a physiological condition of not being able to hear (Lane, 1992; Marcowicz & Woodward, 1982). Deafness is therefore framed as a disability needing to be fixed within the medical model and many Deaf people view the medical model as oppressive, due to the emphasis on a pre-determined ‘normal’ functioning which neglects different types visual and adaptive functioning used by Deaf persons (Munoz-Baell & Ruiz, 2000). By contrast, the cultural model does not depict deafness as a disability of hearing. Instead being ‘Deaf’ (capitalised) is viewed as having a cultural Deaf identity, which is distinct to their local cultural identity, cultural heritage and community. Deafness is viewed as predominance in visual functioning rather than impairment in auditory ability, this is often the perspective of those born deaf and who communicate predominantly through British Sign Language (BSL) (Berke, 2010).

Historically, the literature on mental health care for deaf people was framed within the medical model and psychological evaluations began with the assumption that deafness was abnormal or a disability (Glickman, 2008). In the 1980’s with increased attention on culturally affirmative practice with deaf persons, the medical model of deafness was challenged by the cultural model, promoting the positive aspects of deafness, a distinct cultural identity and the adaptive functioning of Deaf individuals. There are three main factors that are thought to influence the variation in categories of deafness and how an individual situates themselves in line with the medical and cultural model of deafness. These factors include onset of deafness (prelingual, post-lingual or late onset), the severity of deafness (profound or partial) and whether the individual’s family is deaf or hearing. The Paijmans-Baines model (Baines, 2007) used these factors to construct a diffuse range of categories of deafness that were situated on a continuum from deafness as a health condition (medical model) to deafness as an identity (cultural model).

1.2 Deaf Identities

For individuals in the Deaf community, who assign themselves to the Deaf culture, there is a recognition that they belong to a cultural minority (Humphries, 2008; Padden & Humphries, 2005). Unlike many other minority groups, Deaf individuals are often in a position where their cultural identity is not shared by their family (due to being born to hearing parents). Deaf individuals may therefore find themselves not only in a minority cultural group within society but also within their family environment, Deaf peers may therefore be the source of their learning with regards to cultural membership and this may be more likely to shift throughout their lifespan (Dolnick, 1993). Due to being in a unique position of living in a majority hearing society whilst also possibly being within a Deaf community with its own behavioural norms associated with Deaf culture, d/Deaf individuals may therefore find themselves in a position of negotiating their identification with either group to a greater or lesser extent. There are a number of deaf identities that have been associated with the different hearing abilities and histories of the individual and the two models of deafness.

Glickman (1993) identified four distinct identities that reflected the medical and cultural models of deafness; 1) the culturally hearing identity refers to individuals who hold the attitudes, values and beliefs of the wider hearing population regarding hearing loss. Individuals with a culturally hearing identity consider the hearing world as their reference for normality with regards to health and communication and often value oral means of communication (i.e., speech, or lip reading etc.). The role of deafness is therefore often minimised in the individual' identity, however, de-centering deafness in this sense still provides an organisational frame to construct identity. 2) The culturally marginal identity refers to individuals who view themselves as fitting between the deaf and hearing communities and do not have a strong affiliation to either group's values or beliefs. 3) A bicultural identity refers to individuals who have integrated their affiliations to both the Deaf and hearing groups. And finally 4) an immersion identity refers to individuals whose beliefs and values reflect the cultural model of deafness and encompasses the distinct cultural and linguistic characteristics of the Deaf community; this is often referred to as a Deaf identity (McIlroy, 2010).

It is important to consider the differing deaf identities due to the potential impact on psychological wellbeing and mental healthcare, for example Deaf people often mistrust

hearing mental health providers (Glickman, 2008). Furthermore, deafness occurs in multiple, overlapping cultural contexts and so individuals who are deaf may develop multiple identities in relation to both their deafness and other social, ethnic or cultural contexts. Having multiple identities has been associated with poorer psychological well-being if these identities are in conflict with one another (Brook, Garcia, & Fleming, 2008), indicating the importance of being able to integrate their deaf identity with their other identities.

1.3: Prevalence of Psychosis in the deaf/Deaf Population

Research has found an increased incidence of psychosis for individuals accessing Deaf mental health services compared to hearing patients. Appleford (2003) examined differences in presentation for the patients of a specialist Deaf service and hearing patients at a general psychiatric service during 1997-1998. Inpatient admissions were compared between the services (67 Deaf versus 77 hearing) as well as the outpatient caseload (238 Deaf versus 544 hearing). Psychotic disorders accounted for a higher proportion of the caseload for Deaf outpatients (27%) compared to the hearing outpatients (19%). Both the incidence of psychotic disorders and the disparity between Deaf and hearing patients increased for acute admissions, psychotic disorders accounted for 49% and 22% of diagnoses of Deaf and hearing inpatients respectively. Whilst this study is limited with regards to the generalisability of findings to the general population, it does provide findings of increased incidence of psychotic disorders for Deaf compared to hearing patients which is representative of individuals accessing Deaf mental health services.

The reported increased prevalence of psychosis in the Deaf population may not be due to a causal relationship between deafness and psychosis. Altshuler (1986) suggested that longer hospital stays could contribute to inflation in the estimated prevalence of deaf individuals in inpatient settings, deaf patients are likely to stay in an inpatient setting for a longer duration due to the limited services available. Furthermore, difficulties in the assessment and diagnosis of this group may influence the estimated prevalence of psychosis in the deaf population due to the impact of these difficulties on the likelihood of receiving a diagnosis of psychosis. Difficulties in accurately assessing Deaf individuals have been related to the limited number and poor validity of measures which have been standardised for this population (Blennerhassett, 2000). The validity of measures and communication difficulties during the assessment process has been argued to lead to diagnostic errors (Monteiro & McNeeney, 1992, cited in Young, Howarth, Ridgeway, & Monteiro, 2001). This may be

reflected in the fact that Deaf individuals are most likely to receive the diagnosis of a psychotic disorder unspecified than any other psychotic disorder, demonstrating the difficulty for clinicians faced with the polymorphic presentations of the Deaf clinical population (Cole & Zdanowicz, 2010).

1.4: Models of Psychosis

Biomedical models of psychosis dominated the literature in the early 20th century, influenced by early conceptualisations by Schneider (1959) and Bleuer (1950). Biomedical model theories of psychosis have informed psychopharmacological treatments. For example, the dopamine hypothesis has implicated increased dopamine due to hypersensitive dopamine receptors which in turn affect other neurotransmitters in the brain (Grilly, 2002; Seeman, et al, 2005). However, the dopamine hypothesis is challenged by the finding that atypical antipsychotic medications bind more readily to other neurotransmitter receptors in the brain than dopamine receptors (Richtand et al, 2007). Boyle (2002) critiqued the credibility of biomedical treatment efficacy and questioned the reliability of the biomedical approach due to such disparity amongst treatments and models.

The biomedical model was challenged in the 1980's by the biopsychosocial model that incorporated psychological and social factors into the understanding of psychosis (Nuechterlein, Parasuraman, & Jiang, 1983). One biopsychosocial model which has been established in the psychological literature in understanding the development of psychosis is the stress-vulnerability model (Zubin & Spring, 1977). Whilst this model also implicates biological factors as it suggests that individuals have a genetic predisposition to mental health disorders, unlike the biomedical model, the stress vulnerability model argues that this in itself is not sufficient for the disorder to develop without the interaction of psychosocial stressors (Sarafino & Smith, 2011). The stress-vulnerability model suggests that psychotic symptomatology will only emerge when the individual's threshold of stressors exceeds their vulnerability level (Zubin, Magaziner, & Steinhauer, 1983).

Research that has investigated the association between psychosocial stressors and psychosis has indicated that stressful life events including victimisation, social defeat (i.e. being in a subordinate position within society) and trauma are associated with increased incidence of psychosis (Bebbington et al., 2004; Lataster et al., 2006; Selten & Cantor-Graae, 2005; Thompson et al., 2014). It is possible that psychosocial factors may influence the

expression of psychotic symptomatology in the Deaf population through these identified mechanisms which are shared in the hearing population. For example, trauma could be a significant psychosocial stressor as research has found that there is a higher incidence of abuse including neglect, physical and sexual abuse, among deaf and hearing impaired children (Wakeland, Austen, & Rose, 2017). In a large Norwegian study, rates of sexual abuse in the deaf population were twice as high for girls and three times higher for boys, than they were in the hearing comparison group (Kvam, 2004). However, there are also life experiences which are unique to being Deaf which should be considered in the developmental history of Deaf people who go on to develop psychosis and how these may shape the topography and content of their delusions and hallucinations.

Research has found that hearing parents can experience a process of grieving when they learn their child is Deaf, the combination of grieving and the limited sign language abilities of hearing parents (90- 95% of Deaf children are born to hearing parents, Mitchell & Karchmer, 2004) can have a negative impact on parent-child bonding, leading to attachment difficulties for the deaf child (Schlesinger & Meadow, 1972; Vernon & Andrews, 1990). Thomson, Kennedy and Kuebli (2011) suggested that Deaf children and their mothers may have greater difficulty in establishing closeness and negotiating joint attention. Due to the majority of deaf children being born to hearing parents, it is likely that their parents will have little knowledge of Deaf culture and may be more likely to adopt the medical view of deafness and may therefore impact the experiences, development and identity of the child. The limited sign language abilities of parents can also lead them to rely more on physical discipline and authoritarian limit setting (Glickman & Harvey, 2008; Knutson, Johnson, & Sullivan, 2004). This can establish dynamics within the family where confrontations are resolved physically and may reduce the child's ability to develop the skills to resolve problems through language and negotiation (Glickman & Harvey, 2008). It may also establish expectations in the d/Deaf person that authorities operate through physical force rather than negotiation (Glickman, 2008; Schlesinger & Meadow, 1972).

Deaf young people may also experience greater levels of loneliness and isolation (Charlson, Stonf, & Gold, 1992). In addition to social isolation, several psychological factors have been proposed to have an impact on the development of social skills in d/Deaf children, including learned helplessness and families becoming overprotective or disempowering the individual (Matthews, 2015). It has been argued that it is not deafness itself that is a risk to

later difficulties with regards to deafness being a genetic predisposition to developing mental health difficulties, but rather it is the impact of associated language deprivation and communication difficulties on social, emotional and behavioural development (Marschark, 1997). Evidence that Deaf children of Deaf parents are not delayed in social-cognitive skills compared to hearing peers (e.g., theory of mind development; Schick, de Villers, de Villers, & Hoffmeister, 2007) supports the notion that it is not deafness itself that leads to difficulties in these areas.

Whilst there appears to be a number of psychosocial factors that may influence the later development of psychosis for d/Deaf persons, these psychosocial factors may be present in other disorders and are also ubiquitous in the general population. For example, trauma has been indicated as a risk factor for other psychological disorders (Bierer et al., 2003; Norris & Slone, 2013) and has a relatively high prevalence in the general population compared to the rarity of psychosis (Mueser, Rosenberg, Goodman, & Trumbetta, 2002; Norris & Slone, 2013). Furthermore, the unique experiences of being Deaf are suggested to be common shared experiences within the Deaf population (Glickman & Harvey, 2008).Therefore, whilst there may be a relationship between psychosocial stressors and psychosis, this appears to be non-specific and does not indicate a causal relationship. However, it is important to explore how these experiences may shape the behaviour of individuals who go onto develop psychosis and the content of their hallucinations and delusions.

Cognitive theories have a high prevalence in the literature for psychosis and outline theories not only for psychosis broadly but also the specific symptoms of hallucinations and delusions. Cognitive theories of hallucinations implicate the misattribution of external stimuli. Bentall and Slade (1985) found that individuals who have experienced hallucinations were more likely to interpret patterns in random visual stimuli and background noise. With regards to auditory hallucinations, the misattribution of inner speech to external sources due to source monitoring difficulties has been implicated in voice hearing (Morrison & Haddock, 1997; Morrison, Frame, & Larkin, 2003; Waters et al., 2012). The subvocal articulation hypothesis outlines the role of misattribution of inner speech to an external locus of control that leads to hallucinatory experiences (Frith, 1996; Frith & Done, 1986). Waters, Badcock, Michie, and Maybery (2006) propose an alternative cognitive theory of voice-hearing based on memory models. The memory model hypothesis proposes that voice hearing is an "unintentional activation of the stored representations that the patient fails to inhibit or detach

from" (Waters et al., 2012, p.554). The memory model fits with other cognitive explanations of experiences of psychosis being a defence mechanism to protect the individual as it suggests that the content of the stored representations are often reflective of childhood trauma memories. Source monitoring difficulties that lead to the voices being experienced as an external event may serve to protect the individual from re-living past distress if the original source (e.g., a trauma) is disguised from the individual (Read et al., 2004).

Cognitive theories also suggest that grandiosity and paranoia can be viewed as a mechanism whereby the individual attempts to make sense of and protect themselves from painful experiences and negative self-evaluations (Chadwick, Birchwood, & Trower, 1996; Zigler & Glick, 1988). Chadwick et al., (1996) discuss the 'poor me' paranoid individual and propose that through early learning the individual develops a sense of self that is insecure and in attempts to protect themselves, against their own negative evaluations of self and criticism or rejection from others, they develop defence mechanisms. The defence mechanisms of the 'poor me' paranoid individual are proposed to be the construction of others as persecutors in an attempt to locate blame for their lack of success externally and to defend their grandiose self-image (Chadwick et al., 1996). Whilst attentional and reasoning biases have also been implicated in cognitive theories of delusions, critiques of such hypotheses highlight that any biases could equally be a result of delusional thinking and not the cause (Chadwick et al, 1996).

1.5: A Symptomatological Approach

Bentall (1990; 2004) advocates that research exploring psychosis be conducted using a symptomatological approach due to the heterogeneity of individuals with psychosis meaning that a valid all-encompassing theory would not be possible to develop. In line with this approach, and the debate regarding the value of diagnosis, the current study has focused on positive symptoms of psychosis, specifically; hallucinations and delusions. The positive symptom disorganised thought and behaviour were not considered within the scope of the current research, due to the role of different language processing and language dysfluency. Black and Glickman (Black, 2005; Black & Glickman, 2005; Glickman, 2008) have indicated that deaf individuals with language dysfluency are heavily represented in specialised Deaf mental health facilities. This group of deaf individuals often have limited communication skills due to inadequate education and limited family support and difficulties in behavioural, emotional and social adjustment (Dew, 1999). Furthermore, there are differences in language

processing between hearing and deaf individuals. Neuro-imaging studies have found that inner signing for deaf individuals may activate the same regions as inner speech for hearing individuals (McGuire et al, 1996; 1997). However, there are differences in speech perception, deaf individuals watching sign language show less activation of the primary and secondary auditory cortices but increased activity in the posterior occipito-temporo regions (MacSweeney et al., 2002) and sign language has a different grammatical structure. Despite these known differences in language processing and the prevalence of language dysfluency, there is limited research on language processing and dysfluency and the implications this may have on thought processing. Therefore, further research exploring the role of language processing and dysfluency in disorganised thought and behaviour is required to develop a better understanding of how these language issues interact with and differentiate from these positive symptoms of psychosis.

1.6: What is Known About Hallucinations in Hearing and d/Deaf Persons

The subvocal articulation hypothesis (outlined in section 1.4) posits that the hallucination will take the form of the individual's subvocal thought processes, for hearing individuals this is predominantly speech-based, however, there may be greater diversity in the language acquisition subvocal thought processes for deaf individuals based on their hearing and language history. This theory would predict that the individual's experiences of hearing (e.g., congenital or acquired deafness and use of hearing aids etc.) and exposure to spoken or signed language will be reflected in the perceptual characteristics of the voice-hallucinations. The relationship between an individual's experience of language and the perceptual characteristics of hallucinations may therefore explain the reported increased prevalence of visual and tactile hallucinations in the deaf population (Evans & Elliott, 1981; Schonauer, Achtergarde, Gotthardt, & Folkerts, 1998) particularly as these forms of hallucinations usually coincide with reports of voices (du Feu & McKenna, 1999). Atkinson, Gleeson, Cromwell and O'Rourke (2007) found that the perceptual characteristics of hallucinations reflected not only the previous (or lack of) auditory experiences of the d/Deaf participants but also the modality of communication preferences for the individuals. Individuals who were born profoundly deaf, or whose deafness developed pre-lingually, were found to have voice-hallucinations that were non-auditory, whereby they had seen an image of the voice communicating by signing or lip-reading (Atkinson et al, 2007). Individuals who had prior experience of hearing on the other hand reported experiences of auditory voice-hallucinations and were able to describe audiological qualities of the voices (Atkinson et al, 2007). This

provides support for voice-hallucinations mapping onto an individual's language and subvocal experiences. However, theories such as the misattributed external stimuli hypothesis minimise the content of the hallucinations.

Explorations into individual experiences of hallucinations is further limited in d/Deaf persons as, historically, the limited number of studies investigating experiences of psychosis in the Deaf population demonstrate a preoccupation with whether or not it is possible for a Deaf person to 'hear' voices. Early research suggested that reports of auditory hallucinations by deaf persons were a result of a desire to be hearing (Altshuler, 1971) and failed to recognise the use of signs for auditory notions such as 'shout', 'talk' and 'voices' may have their own meaning in sign language for signed communication. Du Feu and Mckenna (1999) assumed that participants reports of voices and shouting to be the equivalent of English accounts of auditory voices but did not explore how these could relate to a deaf persons experience of communication. For example, Atkinson (2006) suggests that the sign 'loud' may be an expression of a sense of intrusiveness in communication. The focus on auditory hallucinations and whether or not these are true auditory experiences has contributed to the limited exploration that has been made into other hallucinatory experiences or the subjective experiences of hallucinations and delusions for d/Deaf persons.

1.7: Types of Delusional Beliefs

Delusions are fixed beliefs that do not correspond with the individual's objective reality and are not flexible to adapt to contradictory evidence (American Psychological Association [APA], 2013). There are different types of delusional beliefs, however, they encompass a small number of themes, the most common of which being persecutory (Bentall, 2003). Other delusional belief forms include somatic delusions about the body and grandiose delusions, whereby the individual believes that they are special in some way, whether they have special powers, a special mission or some type of privileged identity. Delusions of reference refer to beliefs held by the individual in which innocuous events are perceived to hold some special significance for the individual (Bentall, 2003). Perceptual and attentional processes have been suggested to contribute to the maintenance of delusional ideas (Ulmann & Krasner, 1969; Maher, 1974). Rarer delusions have received the attention of more biomedical investigations. For example, Capgras syndrome, a delusional belief that a loved one has been replaced by an imposter (Capgras & Reboul- Lachaux, 1923), has been argued

to be caused by damage to regions of the brain that are responsible for facial recognition (Ellis & Young, 1990).

1.8: Cultural Influences on Hallucinations and Delusions

Hallucinations and Delusions have been found to reflect the individual's context and local culture. Mitchell and Vierkant (1989) reviewed the themes of delusions for patients admitted in an East Texas hospital and found that hallucinations described by patients in the 1930's reflected the period of the Great Depression. During this period of deprivation and personal powerlessness, common delusion themes concerned wealth, a desire for material goods and special powers. Whereas, the hallucinations of patients in the 1980's reflected the advances of technology and themes concerning threats of violence. This cultural influence can be seen in the evolution of delusions throughout history (Maher & Spitzer, 1993) and across cultures. Yamada et al.,(2006) found cultural differences in the manifestation of delusions in 133 patients from three different ethnic groups; there was a greater prevalence of delusions of grandeur in the Euro-American group, persecutory delusions with general paranoid content were more prevalent in both black and Euro-American groups whereas themes of persecution relating to fears of harm, death and injury were more frequent in the Latino group.

Cultural differences have also been found for the content of hallucinations. Kent and Wahass (1996) found that the content of auditory hallucinations differed in patients in the United Kingdom compared to Saudi Arabia. There was a greater prevalence of auditory hallucinations with a religious content in Saudi Arabia patients whereas auditory hallucinations were predominantly described as a running commentary in British patients. Stompe et al., (2006) examined the psychotic symptomology of patients from 7 different countries (Austria, Georgia, Ghana, Lithuania, Pakistan, Poland, and Nigeria) and suggested that 15-30% of the psychotic symptomology examined were culturally dependent, notably 16% of hallucinations examined were considered to be culturally dependent.

Furthermore, the perception of hallucinations is also seen to reflect the societal norms of the individual's culture. For example, within western societies, voice hearing is considered to be a rare and unusual symptom associated with mental health disorders, reflecting the biomedical model of mental illness (Blackman, 2000; Moskowitz, Corstens & Kent, 2011). This conceptualisation of voice hearing differs to the view held by many non-western cultures that voice hearing represents a spiritual or religious gift bestowed upon the

individual. For example, those who hear voices are supported to become indigenous healers amongst the xhosa people in South Africa (Sodi, 1995). An individual's culture determines what is considered acceptable and the reactions to behaviours from others in their community (Skinner, 1953).

With regards to individuals who are Deaf, it is important to consider how the contextual influences of the Deaf community and living in a 'hearing world' may influence their beliefs. The unique context of Deaf individuals' reality should therefore be given consideration when exploring the nature of their delusions or hallucinations due to the potential differences of their everyday life and circumstances. Moore (2016) identified views that Deaf individuals may behave in ways that are adaptive within their own context despite these not being considered to be adaptive by general society. Participants in the study by Moore (2016) implicated experiences of repeated setbacks in attempting day-to-day tasks and adaptive skills (for example complaining) in the development of a passive approach or learned helplessness. These behaviours, which would otherwise be considered to be maladaptive, were proposed to be adaptive in the Deaf individual's context in order to preserve energy when attempts at change will likely yield no change. This notion of disengaging from the hearing world being adaptive for Deaf individuals was supported by Valentine and Skelton (2007), who suggested that due to the setbacks and humiliation many Deaf individuals encounter in challenging hearing environments, avoidance might become adaptive.

Deafness may impact on many aspects of the Deaf individual's life. For example, as a hearing individual it is possible to covertly convey a message to someone when in the presence of others by lowering the volume of speech. For a Deaf individual whose language production is physical it is more difficult to have a private conversation as others in their community would be acutely aware of what they were communicating. The physicality of BSL also carries implications for the individual outside of their community. When in a place populated by hearing individuals, who may not frequently see members of the Deaf community, having a conversation in BSL, there may be increased social attention. Therefore, the reality of not having privacy in your own community and receiving increased attention from members outside of your community could provide a cultural context for an individual's paranoid thinking.

The historical context of deaf culture and the deaf community is also important to consider. Within the Deaf community there are beliefs reflecting complex issues and the historical context of Deaf culture which may be difficult to understand from a hearing perspective. A key example of this relates to the UK government failing to recognise BSL as a language in its own right until 2003 despite campaigning from the Deaf community since the 1980's and almost 40 years later legal status has still not been achieved impacting on access to information, education and services for Deaf people (British Deaf Association, 2014).

1.9: Rationale

There is a paucity of research in the area of psychosis in the Deaf population. The current literature has used nomothetic approaches aiming to identify what is shared among this population and describe the characteristics of hallucinations and delusions (e.g. Atkinson et al., 2007; Atkinson, 2006; du Feu & McKenna, 1999). This descriptive information has been useful and has brought attention to the area of hallucinations and delusions and the presence of these symptoms in this underserved group. However, Mitchell and Braham (2011) state that case formulation for Deaf clients can be challenging due to the interaction of psychosocial, physical, communication, and cultural factors adding to the complexity of the presenting problem. Further exploration of these factors in relation to the development of symptoms may therefore advance understanding of how the psychosocial and cultural factors of being Deaf may influence the content, themes and topography of these symptoms over the course of their development. Increased knowledge of any relationship between cultural factors and experiences of being d/Deaf will allow clinicians to develop contextual understanding of these experiences in relation to hallucinations and delusions when working with d/Deaf persons.

Chadwick, et al., (1996) argue that it is not just the presence or absence of symptoms which is helpful in clinical practice. From a psychological perspective the nature and content of an individual's delusions and hallucinations would be hypothesised to reflect the individual's wider psychological vulnerability and contain personal meaning (Chadwick et al., 1996). Furthermore, an individual's feelings and associated behaviours are thought to reflect the content of voices and it is through the content and individual meaning assigned to the voices that otherwise incongruous responses and behaviour can be understood (Chadwick et all., 1996).

Through reviewing the literature themes of hallucinations and delusions being 'shaped' through individual experience and culture became a key part of the developing project. The notion of shaping behaviour whether this is overt or an internal event fits within the behavioural paradigm. Behavioural approaches can be used to track the development of symptoms and their personal meaning over an individual's developmental history. Functional analysis has been used to advance understanding in multiple areas including; eating disorders (Slade, 1982); offence paralleling behaviour (Dawson & Gresswell, 2010), relapse prodromes (Bywood, Gresswell, Robertson, & Elwood, 2006) and self-harm (Iwata, Dorsey, Slifer, Bauman, & Richman, 1994).

Multiple Sequential Functional Analysis (MSFA) (Gresswell & Hollin, 1992) is an expansion of typical functional analysis. Case study research using MSFA has an evidence base in the literature for exploring the developmental nature of symptoms and behaviours (e.g., Dawson & Gresswell, 2010; Gresswell & Hollin, 1992; Mappin, Dawson, Gresswell, & Beckley, 2013). This approach has demonstrated that an individual's presenting difficulties are not just random but are culturally bound and shaped by their experiences.

The Deaf population is considered to be heterogeneous in their presentation of hallucinations (Atkinson et al., 2007). Therefore, a greater understanding of any common psychosocial factors and their role in shaping the content of hallucinations and delusions for Deaf individuals may provide more information about the similarity or diversity of these symptoms and inform theory to provide a baseline literature to guide clinical practice.

1.10: Research aims

The aim of the current study was to track the developmental nature of hallucinations and/or delusions in a sample of three d/Deaf adults, exploring these experiences within the context of unique experiences of being d/Deaf and Deaf culture to answer two research questions:

1. What are the themes, topography and content of hallucinations and delusions amongst a sample of Deaf adults diagnosed with psychosis?

2. How have the themes, topography and content of hallucinations and delusions been shaped by the individual's developmental history and the experiences which are unique to being Deaf and Deaf culture?

Method

2.1: Ethical Approval

Ethical considerations were taken into account at all stages of the research process following the British Psychological Society's code of ethics and conduct, and code of human research ethics (The British Psychological Society, 2009, 2010). This study was granted ethical approval by the University of Lincoln's School of Psychology ethics committee, the Health Research Authority, NHS Research Ethics Committee and the local Research and Development department of the recruitment site.

2.2: Epistemological Position

MSFA falls within the radical behaviourist domain and as such the philosophical position of MSFA is within the paradigm of pragmatism, more specifically functional contextualism (Hayes, 1993). Within functional contextualism, truth is considered to be successful working and lies in its functional utility, whether it yields effective action, and not the extent to which it mirrors reality (Staddon, 2001). Functional contextualism is concerned with actions that are "…being performed by someone for some purpose in some context" (Reese, 1993, p. 72). It is not only the current context of the action which is important but its historical context in order to understand the meaning and function of the act.

The pragmatic truth criterion of functional contextualism views no absolute truth and instead considers truth in relation to effective action. Analysis is therefore considered valid in the extent that it leads to effective action and should be directly or indirectly practical (e.g., through the construction of practical knowledge) (Biglan & Hayes, 1996; Fox, 2006; 2008; Pepper, 1942). This pragmatic truth criterion of functional contextualism guided the research design and methodological choices in the current study.

Research within the functional contextualist paradigm has traditionally favoured experimental methods. However, an experimental functional analysis to test the hypotheses made by the MSFA's and establish causal factors for the development of hallucinations and delusions was beyond the scope of the current research study. Despite a reliance on experimental methods, functional contextualism lends itself to alternative research methods that are guided by its underlying principles. The MSFA method is well suited to the underlying principles of functional contextualism that suggest that in order to fully understand a behaviour/ phenomenon and its meaning and function, it is important to

understand not only the current context but also the historical context (Morris, 1993). The exploration of historical context to understand the current phenomenon and its development in the context of the individual's life history is a central component of the MSFA approach and analysis and leads to hypotheses to be verified by future research (Sturmey, 1996).

2.3: A Case Formulation Approach

Arriving at a case formulation approach. A qualitative approach had been identified as appropriate due to the research questions and during the research design process three key criteria were considered to identify a suitable methodological approach. Firstly, the approach would need to be appropriate for a potentially small sample. Due to the limited number of Deaf services identified as recruitment sites it was acknowledged that the number of consenting individuals who met the inclusion criteria could be relatively small. Secondly, the methodology would need to have an evidence base of being appropriate for individuals who experience aspects of psychosis. Thirdly, the method would need to be appropriate for the language needs of the population. Due to the different language structure and varied literacy abilities of the d/Deaf population, qualitative approaches that analyses text such as email correspondence would therefore not be appropriate for the current study. Furthermore any approaches that involved interviews would need to be able to make adaptations for a sign language interpreter.

During the early development of the project Interpretative Phenomenological Analysis (IPA) had been considered as a possible approach to facilitate insight into how Deaf individuals within their given context make sense of their experiences of hallucinations and delusions and attach personal meaning to their unique life events. However, it was the third criteria that ruled out this methodology due to the ongoing debate about the use of interpreters within IPA research. IPA involves the researcher and their interpretation being a central component of the research process as it is concerned with hermeneutics (Smith & Osborn, 2008). The process of IPA involves a double hermeneutic, whereby the research attempts to make sense of how the participant makes sense of their lived experience. The use of an interpreter in this process therefore involves a further hermeneutic layer as the researcher attempts to make sense of how the interpreter has made sense of the participant. This is a complicated process and no clear guidelines were found about how to manage this process. Due to the current study concerning the translation of two languages with different modalities and the six points of interpretation involved in this process (Vernon & Miller,

2001: see section 2.9) it was decided that without clear guidance on how to approach the involvement of an interpreter in the analysis adherence to the method could not be guaranteed and IPA was not an appropriate methodology for the current study.

An alternative qualitative method that was considered was discourse analysis as this approach assesses both the social context and power dynamics. Discourse analysis explores power relations and how they are negotiated and performed through the use of discourse (Paltridge, 2012) and aims to identify the social understandings from which our talk is derived. These social understandings create 'building blocks of conversations' (Edley, 2001, p. 198), offering a coherent means of talking about events in the world (Forrester, 2010). As this approach aims to understand how language constructs different versions of reality, the study would have taken a social constructionist position. Social constructionism could have been considered to be an appropriate epistemological position as it views knowledge as being constructed through social processes, and is therefore construed of culturally shared agreements (Forrester, 2010). Discourse analysis is also a flexible method allowing it to address various research questions, again identifying this method as a potential approach to the project.

However, this approach was also ruled out due to the third criteria related to the methodology being appropriate for the language needs of the client group. Discourse analysis' attention to language and the latent content of what is being expressed or how this is constructed through social expectations was not considered appropriate due to the language structure of BSL. In sign language complex expressions can be communicated in relatively short phrases and it was therefore considered that conducting a detailed analysis of language, including latent content may be difficult due to BSL not only being a different language but being a language that uses a different structure and modality.

A case formulation approach was identified as an appropriate methodology that met the three criteria for the current study as case study approaches are suitable for small sample sizes, adaptations can be made for interpreters and case study approaches have an evidence base for exploring experiences of psychosis with Deaf individuals (e.g., Pederson & Ernst Nielson, 2013; Weiler, Landsberger, & Diaz, 2013). Whilst cognitive theories have prevalence within the literature for hallucinations and delusions a case study approach that was underpinned by behavioural theory was chosen for the study. The reason that a behavioural approach was chosen over cognitive theory was that a case study approach had

been identified that would be appropriate for the project and had a defined structure that drew on behavioural theory (MSFA). The defined methodological approach of MSFA was thought to be strength as following an existing rigorous case study methodology would increase validity. Behavioural theory is the second foundation to Cognitive Behaviour Therapy, the recommended intervention for psychosis (NICE, 2014), demonstrating the appropriateness of this theoretical position beyond research to clinical practice.

Overview of case formulation. Case formulation is a clinical skill that helps psychologists to organise complex case histories to generate hypotheses and facilitate a person specific understanding of a presenting difficulty and how this may have developed over the individual's lifetime in order to guide intervention (Eells, 2001; Kennedy & Llewelyn, 2001). Formulations use psychological theory to develop an understanding of an individual's difficulties, how they may have developed and what factors are maintaining them in the present, to guide a psychological intervention (Johnstone & Dallos, 2006). The British Psychological Society's Division of Clinical Psychology (DCP) advocated the use of psychological formulation in its position statement calling for a paradigm shift away from the 'disease' model of psychiatric diagnosis (DCP, 2013).

Guidelines have been developed outlining key components of quality psychological formulations for practice (e.g., DCP, 2011) and for case study research (e.g. Bromley, 1986). Bromley (1986) identified criteria to be met for effective case study research; the current study can be seen to meet these criteria in the following areas:

1. *It must give an explanatory account of the reasons for behaviour.* The research aimed to construct an explanatory account of the individual's hallucinations and delusions within the context of their environmental and learning histories.

2. *It must aim to improve knowledge by providing new information which can be drawn on by future researchers.* The study aimed to provide an understanding of the unique experiences related to being deaf in relation to the context, nature and topography of hallucinations and delusions. To date there is no research exploring these experiences in relation to hallucinations and delusions in the deaf population.

3. *It must develop or sustain the discipline of studying individual cases.* The study will be the first application of the MSFA methodology in research with the deaf population, developing the use of this case formulation method with the population.

4. *Be founded on acceptable procedures and arrangements.* The methodology of MSFA is established within the psychological literature, further procedures (e.g. recruitment, interview guides and interview processes) were considered during research supervision and approved by the university and NHS and local site ethics committees.

2.4: Multiple Sequential Functional Analysis.

In functional analyses, the presenting difficulty is analysed in the context of the individual's environmental and learning history (Sturmey, 1996). Functional analysis is based on the principles of behaviourism, although early behaviourism focussed on observable behaviours, Skinner's (1953) 'radical behaviourism' encouraged the analysis of cognitive experiences in the context of observable behavioural contingencies. Cognitive and affective experiences are considered to be covert primary behaviours.

When conducting a functional analysis, the antecedent (A) can be an environmental or behavioural event which precedes the behaviour (B) producing an environmental or behavioural consequence (C). This analysis is often depicted using a colon (A:B:C) to illustrate that the relationship between events in the analysis are not viewed as causal. The current research intended to develop a retrospective biographical account of individual life histories to develop descriptive functional analyses (Anderson, 1981; Sturmey 1996).

MSFA goes beyond the traditional functional analyses that have examined discrete behavioural events (Sturmey, 1996) to develop a series of functional analyses across the individual's developmental history (Gresswell & Hollin, 1992). An important difference in MSFA is identifying the role of learning on subsequent behaviour development. Within MSFA, behaviours (overt or covert) are considered to be functional, serving a purpose for that individual within their context, and are selected, shaped and maintained by the individuals learning history, current context and the consequences of these behaviours. The consequences salient in the analysis are those which appear to function to increase or reduce the hallucinations or delusions through processes of reinforcement or punishment (see Table 11 for a glossary of terms) of the individual's overt or covert behaviours (Skinner, 1974). For example, hallucinations may be negatively reinforced in some cases through the removal of aversive stimulus situations (Heilbrun, Diller, Fleming, & Slade, 1986). Additionally it may be that the positive functions of voices serve to reinforce the hallucinations, the companionship associated with positive voices may become a surrogate for social relationships for individuals experiencing social isolation (Mawson, Berry, Murray, &

Hayward, 2011). Within this process, key learning occurs, learning based on an A: B: C: sequence at one stage becomes an antecedent for the subsequent A: B: C: sequence. The key learning hypotheses are inferences based on the data collected and subsequent functional analyses, demonstrating a functional relationship of this learning on the development of the behaviour of interest, in this case, hallucinations or delusions. Furthermore, MSFA helps to identify when insufficient information is available about the antecedents and behaviours that occur within this context (Dawson & Gresswell, 2010). Difficulties in constructing a coherent narrative have been associated with psychosis (see Brown, 2017; France & Uhlin, 2006); therefore, the identification of missing information inherent to the analysis process was thought to be a valuable contribution to aiding transparency.

A criticism often put towards behavioural theory is that it neglects cognitions as irrelevant. This is a misconception as true behaviourists would argue that behaviourism is an all-encompassing theory that accounts for cognitions, physiology and language (Skinner, 1957). Within behavioural theories cognitions are positioned as covert behaviours. Radical behaviourism, which underpins the current study, treats emotions and cognitions as private events and it is for this reason that it is argued that the criticism that inner experiences such as cognitions are ignored is not valid (Moore, 2008; Skinner, 1974).

> *A science of behavior must consider the place of private stimuli as physical things, and in doing so it provides an alternative account of mental life. The question, then, is this: What is inside the skin, and how do we know about it? The answer is, I believe, the heart of radical behaviorism (Skinner, 1974, pp. 211–212).*

Hallucinations and delusions are therefore assessed as covert behaviours and the personal meaning of these inner events are explored within a functional analysis allowing for a wealth of information to be explored including cognitions (covert behaviours) that occur within the context of the hallucinations and delusions. The personal meaning that an individual ascribes to these experiences is demonstrated through the key learning that shapes and maintains the hallucinations and delusions.

Due to MSFA being based on principles of behaviourism, Relational Frame Theory (RFT) (Hayes, Barnes-Holmes, & Roche, 2001) was also considered during the process as RFT is an important component to consider in the analysis of behaviour. RFT is concerned with the relationships that individuals make between stimuli and events that allow for

contextual control so that relational learning can be transferred to new events or stimuli. Hayes (2004) proposes three main properties of relational learning that can occur; bi-directionality whereby, if a person is taught that A is the same as B, then that person will derive that B is the same as A. This relational learning can then be extended into complex combinations (combinatorial entailment); if a person learns that A relates to B in a particular context and B relates to C then the individual can derive a relation between A and C in that context without direct learning (Hayes 2004). Finally the established relations allow for a transformation of stimulus functions among related stimuli. When all three properties are established between stimuli this relational responding is known as a "relational frame". Hayes (2004) outlines the clinical relevance of relational framing as emotional responses learned for one stimulus or event in one context can alter the individuals' expectations and emotional responses to different stimuli within the same relational frame.

2.5: Recruitment

Participants were recruited using a consecutive recruitment strategy. Individuals were identified and recruited until either the maximum sample size had been achieved or the research had reached the predetermined timescale point whereby it would no longer be feasible to recruit further participants (and the minimum number of participants had been recruited). Three participants had been recruited within the identified timescale, meaning that the minimum sample size had been achieved, no further participants were therefore recruited and no additional prospective participants had to be turned down.

Initial contact with individuals was made through their care team based on the information provided in the recruitment email to the site (Appendix 4). Once informal consent was given by the individual, their capacity to consent was clarified with the lead professional before the researcher made direct contact to obtain formal consent. To protect the prospective client's confidentiality prior to their formal consent to participate in the study the researcher was only provided with the name of each participant before the initial meeting and that they had been deemed to meet the essential inclusion criteria by their consultant psychiatrist.

Inclusion criteria consisted of women and men aged over 18 years with a diagnosis of psychosis and self-reported experiences of hallucinations and/ or delusions. Participants were required to use BSL as their primary mode of communication and have a prelingual deafness. These criteria were decided upon as the research was interested in the influences of being

Deaf, with regards to Deaf identity and culture, on the content of hallucinations and delusions. Exclusion criteria consisted of individuals who did not have a diagnosed profound and prelingual deafness. Due to the reliance on triangulation in the MSFA methodology, further exclusion criteria included participants who would not consent to their files being accessed or would not identify or consent to a relative or professional being interviewed.

2.6: Participants

All participants were given pseudonyms (Ben, Michael & Aiden) and the names of identifiable places were changed to protect the identity of participants in this study. Participants were all male, aged 37-51 years (A summary of demographic variables are presented in the Journal Paper, Table 5 pg42-43). With regards to their deafness; deafness had been identified in early infancy, Ben and Aiden were diagnosed as profoundly deaf at aged two years or earlier and Michael's deafness was identified at age three (however, it is most likely that onset occurred prior to this but was not detected due to family neglect) indicating that all participants have a profound pre-lingual deafness.

2.7: Consent

The researcher constructed an information sheet regarding the nature of the study and what participation would require (Appendix 5-6), this was shared with the client at the initial meeting with the researcher. Informal consent had previously been established from the care team, it was at this point that prospective participants were asked to provide informed consent to take part in individual, video recorded interviews, access relevant documents and client records, to identify a professional or relative and provide consent to this person to be interviewed with regard to the participant's personal history and experiences of hallucinations and delusions (Appendix 7). Consent was obtained from the identified professional (Appendix 8) and further consent was gained from the participants for the researcher to provide a report to their care team (Appendix 9).

Although a written participant sheet had been provided, considerations were also made for the population that was recruited with regards to the varied written English ability of the adult d/Deaf population as it was expected that participants may not have the literacy skills to read the information sheet and consent form. Ben and Michael did not have sufficient literacy skills, the information from the participant sheet and consent form was provided with the assistance of an interpreter. Aiden was able to read written English and chose to read the

consent form, however to support his understanding, this information and the participant information sheet was also provided with assistance from an interpreter. The interpreter signed the consent form stating that they had translated the information detailed in the document and the participant had agreed to take part in the study, this process was also witnessed by a third party. Participants were debriefed on completion of the second interview, the debrief form was translated by the interpreter (Appendix 10).

2.8: Data Collection

Three sources of information were obtained for each individual: interviews with the participant, a supporting interview with a professional and a file review. The information from the participant interviews was triangulated with information gathered from the supporting interview and a file review of the individual's NHS records (i.e. clinical notes and reports) to gather collateral information about the individual's hallucinations and delusions and any incidents identified in the interviews.

Participant interviews. Two interviews were completed with the participants, each interview lasted for one hour. Interviews were video recorded and anonymised notes were taken throughout. Due to the method of analysis, the interviews did not need to be transcribed as no textual analysis was conducted. Therefore there were no additional written records of the interview content. All data was stored in accordance with university policies as approved by the ethics committees. The interviews were conducted on site in a room on the unit that participants were familiar with and used for relaxation.

The interviews followed a semi-structured interview guide (Appendix 11a-11b). The guide outlined the key themes and areas that would be covered with example questions at the request of the University of Lincoln School of Psychology Research Ethics Committee (SOPREC). The interview guide was developed from the broad themes used in clinical interview schedules (e.g., Hare, 2003) and identified psychosocial factors from the literature. The guide was intended to inform the process but not restrict the content explored as this would be dependent upon the individual's life history and unique experiences. The first interview gathered a detailed account of the participant's experiences specific to hallucinations and delusions, exploring a current account and developmental history. Following the initial interview the data was thoroughly analysed and initial MSFAs were developed before re-interviewing the participant. The second interview gathered a detailed account of the participant's broader developmental history, areas explored included; family,

school, friends and intimate relationships. The second interview also intended to gather information to fill gaps in the history and gather more detail regarding the areas already deemed relevant to the developing MSFAs from the first interview. Due to the sample recruited all having a forensic history, their offence history was also explored where relevant to the developing MSFAs.

Supporting interviews. All participants were provided with the option of identifying either a professional or family member for a supporting interview. All three participants identified their consultant psychiatrist as the individual who would know the most about their experiences that they wanted to complete the interview (it should be noted that this was the same person for all participants). The identified professional was the lead professional and was therefore aware of the study and had been the point of contact for recruiting participants, he was therefore recruited directly for the supporting interviews. Professional interviews lasted between 30 minutes and one hour, a generic interview schedule had been outlined for the ethics panel which was adapted based on each participant's working MSFA sequences.

The purpose of the professional interview was to gather further details of events that participants could not provide (e.g. previous experiences of hallucinations/ delusions whilst in the service when their mental state was too poor to recall detailed information). The interview was also intended to allow for triangulation in order to check the developing hypotheses from the primary interview with participants (i.e. consensus checking).

File reviews. A file review was completed for each participant. The purpose of this process was to gather collateral information to allow for triangulation of the information gained from both the participant and the professional interviews. It was intended that this would allow for consensus checking of the developing MSFAs (the documents reviewed for each participant are outlined in the journal paper).

Triangulation. Triangulation is an inherent component of the MSFA methodology. Qualitative methods have traditionally centred on introspective interview data, which has been criticised with regards to the reliability of the results (Silverman, 1989) and for the impact of diminished insight and awareness of internal states when assessing emotional experiences (Di Maro et al., 2014). Triangulation allows for the accuracy of the introspective accounts to be checked with data from other sources (Webb, 1966; Jupp, 1989) and reduces the possibility of bias (Denzin, 1989). However, the corroboration of multiple data sources cannot be truly systematic, different sources may measure different aspects of the

phenomenon of interest making it difficult to compare these sources (Bloor, 1997; Jupp et al., 2000). The behavioural theory underpinning the approach provided a further source of triangulation to address any discrepancies within and between the sources of data. With regards to the epistemological position of functional contextualism underpinning this study, the process of triangulation could be considered to be a pragmatic method of identifying truth by consensus. Regular discussions with research supervisors were held throughout the analysis process in order to reduce the potential for researcher bias.

2.9: Issues Related to Using an Interpreter

The interview process with the d/Deaf participants required a sign language interpreter to assist in translation between the researcher and participants. The use of an interpreter brings with it several issues: confidentiality, reliability of translation and defining the roles of the interpreter and researcher.

The issue of confidentiality is one of great importance. It was essential that the information discussed remained confidential and identities were protected despite having a second professional present. An interpreter was sought who had experience of working within the service to ensure that they were experienced in working within the confidentiality framework of healthcare. The interpreter was briefed about confidentiality and provided with a disclaimer form to sign stating that they will not breach confidentiality (Appendix 12)

Due to the clinical nature of the research topic it was important that role identification was outlined in an initial briefing with the interpreter to ensure that the interpreter did not take on a clinical role during the interview process. In order to maintain professional boundaries, the interpreter was instructed that personal and sensitive information should not be explored unless broached by the researcher. Likewise if any unexpected issues were to arise during the interview, the interpreter was instructed that they should not pursue these issues without first discussing with the researcher. The briefing also allowed the researcher to clarify the function of questions and explain any necessary terminology in order to prevent misinterpretation of questions.

Issues relating to the reliability of interpreting sign language arise as it is a transaction between two languages with different modalities (Vernon & Miller, 2001). BSL has a topic-comment structure and inflection is demonstrated by facial expression, visual orientation and spatial location (Temple & Young, 2004). Cultural nuances and complex expressions can

therefore be communicated in short sign utterances, questioning the degree to which direct translation is possible (Temple & Young, 2004). However, researchers have attempted to resolve this issue by explicitly representing the act of translation and providing additional contextual information (Ladd, 2003).

Vernon and Miller (2001) suggest a six stage process in translation which will have occurred in the current project; (i) the hearing researcher expressed an intended question, (ii) the interpreter translated into BSL what was said, (iii) the Deaf person extracted the meaning of the question and then, (iv) the Deaf person responded in sign language which was, (v) translated into speech before finally (vi) the researcher came to an understanding of the participant's response. Therefore, there were six possible points at which misinterpretation or misunderstanding could occur. However, steps were taken to strengthen the reliability of translation by ensuring the interpreter had a high level of proficiency in both BSL and English (Twinn, 1997). The interpreter having proficiency in BSL and English was a requirement and was established through clarification of their qualifications when identifying an appropriate interpreter for the study.

Despite the limitations of using interpreters, research in minority communities has established the use of interpreters with other cultures and has demonstrated the ability to conduct successful qualitative research with interpreters (Kapborg, 2000; Pavlish, 2005; Woo & Twinn, 2004). Methodological recommendations for qualitative research with interpreters were followed to strengthen the trustworthiness of the data, including establishing the translator's qualifications/ prior experience and their role within the process (Squires, 2009).

2.10: Trustworthiness

One important issue in qualitative research is demonstrating that the research is trustworthy and ensuring transparency to enable the study to be replicated and provide credibility to the conclusions drawn from the data (Denzin & Lincoln, 2005). A key approach that was used to demonstrate the trustworthiness of the study was the use of an audit trail. The audit trail provides a detailed description of the research process that was followed, documenting process notes, methodological decisions, the process of analysis, and self-awareness of the researcher demonstrated through documents (e.g. ethical approval letters), evidence of the analysis process and original data (e.g. the file reviews and thematic analysis diagram) and the use of a research diary (see the reflection section for diary excerpts).

Triangulation was also used to demonstrate trustworthiness. Within the MSFA design the process of triangulation is the primary process through which trustworthiness is demonstrated and is strength of the methodology with regards to supporting trustworthiness. The process of triangulation in the data collection process used multiple data sources, investigating the same phenomenon, is employed to increase the validity of the research through the comparison of the different perspectives (Feagin, Orum, & Sjoberg, 1991; Jupp, Davies, & Francis, 2000) and reduce the possibility of bias (Denzin, 1989). One criticism put towards case study research approaches is that they lack rigor which can allow for the researchers biased views to influence the findings or conclusions (Yin, 1984). It could therefore be argued that this is a limitation with regards to trustworthiness that MSFA has inherited as a case study approach. However, the use of triangulation of a wealth of information and a structured approach to conducting this process makes MSFA a rigours approach and supervision was utilised to address the argument of researcher bias.

Supervision was the final approach through which trustworthiness was sought during the analysis. Regular discussions with research supervisors were held throughout the analysis process in order to reduce the potential for researcher bias and to ensure that the MSFA sequences reflected the original data. A limitation of the MSFA methodology is that there are no clear guidelines of how to utilise supervision within the MSFA model. It appears that this limitation is not unique to MSFA as guidance for supervision in qualitative approaches appears limited broadly. However, studies utilising MSFA have an evidence in the literature and have employed supervision during the analysis process in line with the current study (e.g. Mappin et al., 2013).

However, there are clear criteria for evaluating the quality of qualitative research and demonstrating trustworthiness, for example, the Joanna Briggs Institute (JBI) (JBI, 2017a) appraisal tool for qualitative research which assesses the extent to which a study is congruent and valid. The JBI tool consists of 10 questions to assess the quality of qualitative research and the study was found to meet all 10 criteria:

1. Is there congruity between the stated philosophical perspective and the research methodology?

2. Is there congruity between the research methodology and the research question or objectives?

3. Is there congruity between the research methodology and the methods used to collect data?

4. Is there congruity between the research methodology and the representation and analysis of data?

5. Is there congruity between the research methodology and the interpretation of results?

6. Is there a statement locating the researcher culturally or theoretically?

7. Is the influence of the researcher on the research, and vice- versa, addressed?

8. Are participants, and their voices, adequately represented?

9. Is the research ethical according to current criteria or, for recent studies, and is there evidence of ethical approval by an appropriate body?

10. Do the conclusions drawn in the research report flow from the analysis, or interpretation, of the data?

There are quality appraisal tools for case study research, however, these assess the quality of research investigating interventions (e.g. the JBI tool for case series and case reports: JBI, 2017b, 2017c) and were not appropriate for the current study.

The MSFA approach could be strengthened by clear guidelines of how to utilise supervision during the analysis process to demonstrate trustworthiness through this decision process. Furthermore, the development of a quality appraisal tool that incorporates areas of evaluation pertinent to the MSFA methodology would be valuable to assess the quality of research studies.

Analysis

2.11 Analysis

The method of analysis in this study was MSFA (Gresswell & Hollin, 1992). The process took seven months from recruitment through to final analysis. The analysis process consisted of two stages; an individual analysis of case histories and an across case analysis to identify and common themes and similarities/ differences between the cases.

Stage one: Individual analysis of the case histories was conducted using the MSFA methodology and so analysis was conducted concurrently to data collection. As the data was collected across multiple sources the information was first triangulated; the information from the two participant interviews was triangulated with the information from a file review of their records and data from the professional interview. The behavioural theory itself acted as the final level of triangulation as the theoretical assumptions (e.g. reinforcement leading to an increase in the behaviour of interest) were used to establish accuracy of accounts. The developing MSFA sequences were adapted throughout this process as new information was established and the developmental stages were defined based on the data analysis. The overall process of the individual analysis consisted of nine stages (see figure 2) and ongoing supervision was sought once the initial MSFA sequences had been developed.

Discrepancies or inconsistencies between sources were addressed through the triangulation process. Inconsistencies were predominantly found relating to participants timelines of events and triangulation with records from the file review was used to clarify time points. For example, Michael was inconsistent about periods when he was living in the UK and when he was living in the Caribbean during his early childhood. Records from his childhood that evidenced when he had been residing at the care home provided a report that detailed when he went into their care and when his Mother removed him to take him to the Caribbean. Any identified discrepancies were scrutinised by objective reviewing of all available data to establish the account which was considered to either be the most consistent or was supported by collateral information/evidence.

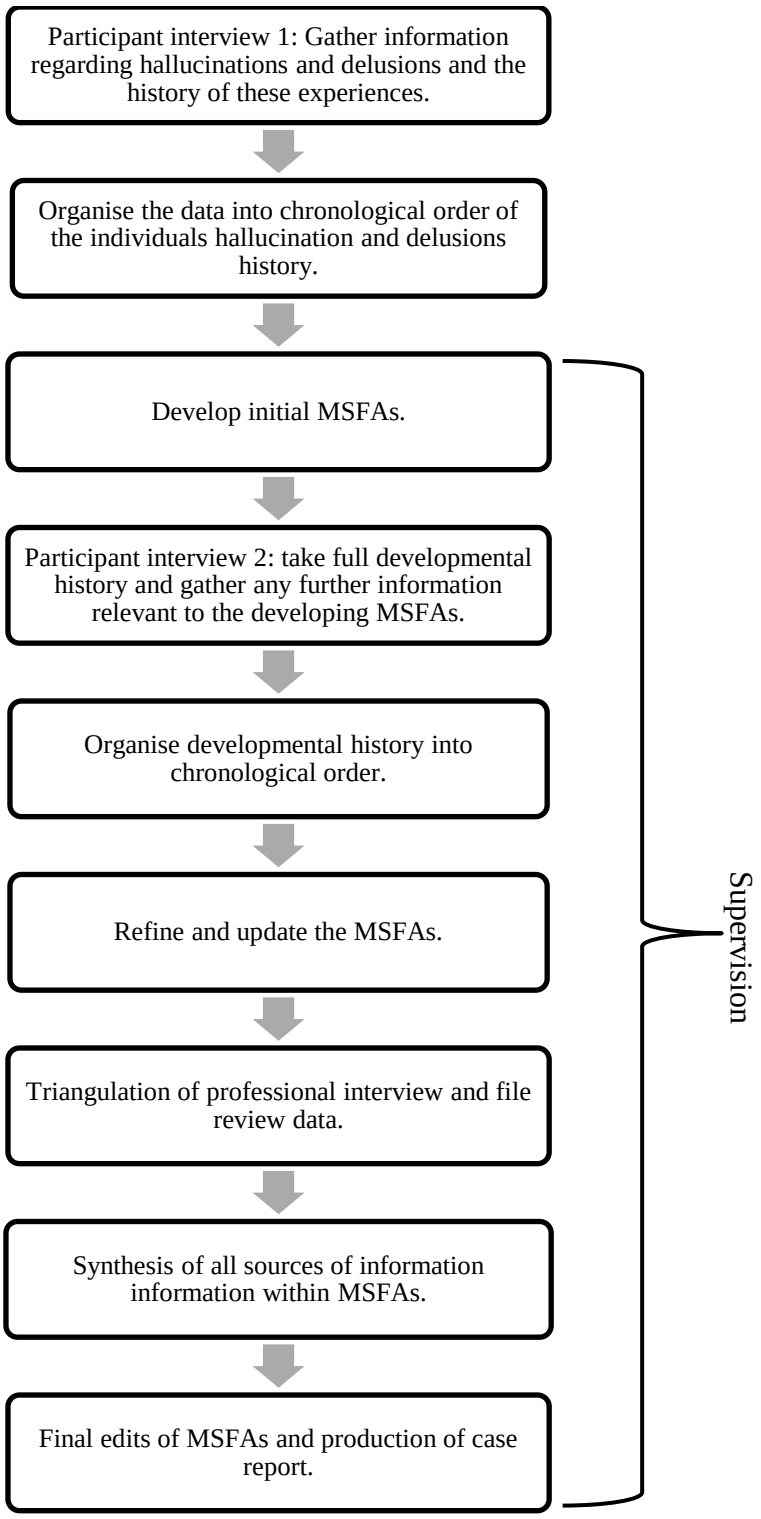

Figure 2: An outline of the MSFA analysis process.

Stage two: An across-case analysis of the MSFA sequences was also conducted to identify common themes that were shared across the participants. Thematic analysis has not traditionally been used for the across- case analysis component of MSFA research, this process has previously not had a structured approach to the analysis. Thematic analysis was

chosen for this component of the analysis as it is offers a systematic and structured framework for analysing large data sets and exploring the perspectives of different participants in order to identify similarity, differences and common themes (Braun & Clarke, 2006; King, 2004). Traditionally thematic analysis would use larger samples and it could be argued that this is a limitation of applying this method of analysis to the current data as saturation could not be established. Data saturation refers to the point at which there is little or no change to themes despite additional data and 12 interviews has been suggested to be the sample size at which saturation can occur (Guest, Bunce & Johnson, 2006). However, thematic analysis has been used in single case studies where multiple interviews are completed with only one participant. Arguably the amalgamation of data in single case studies, as it's the case in the current research, provides 'sufficiency', leading to adequate depth and quality being established. Furthermore, the notion of saturation aligns with more experiential and positivist positions that does not fit with the epistemological position of functional contextualism. It was therefore believed that the limitations of having a small sample size a) was not a concern with regards to the quality of the analysis as sufficiency should be established from the wealth of data and b) was outweighed by the benefits of having a structured approach to the across case analysis with regards to strengthened validity.

Thematic analysis is a theoretically flexible approach for analysing qualitative data in order to identify patterns and themes across a data set (Holloway & Todres, 2003; Braun & Clarke, 2006). Themes can be identified in an inductive manner as they are linked to and driven by the data itself (Frith & Gleeson, 2004; Patton, 1990). A theme is considered to be anything that captures an important aspect of the research question and has a level of prevalence across the data set (Braun and Clarke, 2006). Byotzis (1998) described themes as being patterns across the data which at a minimal level describes and organises observations about the phenomenon and at a maximum level interprets the phenomenon. Thematic analysis can also be conducted in a deductive approach, whereby it is driven by existing theoretical knowledge. The current analysis was conducted using and inductive approach. Although the interview schedule had been informed by existing knowledge within the literature (e.g. common psychosocial factors and themes of hallucinations and delusions derived from the hearing literature), the process of analysis was largely inductive as the analysis was driven by the data. Key themes were decided upon based on whether they had a minimal or maximal level of interpretation (Boyatzis, 1998), as themes were either retained or rejected depending on the support from the data that related to each emerging theme (see

Appendix 13 for a diagram of the analysis process from initial codes to key themes). The inductive thematic analysis followed Braun and Clarke's (2006) six stage process; i) familiarizing yourself with your data; ii) generating initial codes; iii) searching for themes; iv) reviewing themes; v) defining and naming themes; and vi) producing the report.

Stages 1-3. The interviews with participants were watched and re-watched, in addition the process notes from the interviews with participants and the professional, the developed MSFA sequences and the file reviews were read a number of times in order to familiarise myself with the data. During the process of familiarising myself with the multiple data sources, initial aspects of the data that were of interest, captured a distinct feature of the data and appeared to have some relevance to the research aims were coded. The initial codes were colour coded and grouped according to identified connections to develop emerging themes.

Stages 4-6. Stage four occurred concurrently to stage three as the emerging themes were restructured as changes to the groupings of codes were made dependent on new links that were established and whether themes were thought to accurately represent the codes. This process involved the reorganisation and clustering of themes into superordinate and subordinate themes to identify the final key themes to be defined and named. The final process of the analysis concerned the write up of the report and presentation of the themes in the result section.

2.12: Behavioural Processes and Terminology

The method and analysis employed in the current study was developed from radical behaviourism and the science of applied behaviour analysis (Skinner, 1953, 1974), both of which propose rules about the development of behaviours. These rules and assumptions are conveyed through specific and established terminology (see Table 11). The current analysis is intended to remain true to the behavioural paradigm, however, for ease of understanding, the main presentation of the individual participant analyses are presented as narrative descriptions of the men's life histories with limited jargon. Specific behavioural terms have been presented within the behaviour explanations and hypotheses of each participant's behavioural development following each descriptive analysis.

Table 11

A summary of behavioural terms.

Term	Description
Covert Behaviour	Internal events including affect, cognition and physiology.
Overt Behaviour	Observable behaviours.
Positive reinforcement	Added stimulus consequence that increases probability that a behaviour will occur.
Negative reinforcement	Removed stimulus consequence that increases probability that a behaviour will occur.
Positive punishment	Added stimulus consequence that decreases the probability that a behaviour will occur.
Negative punishment	Removed stimulus consequence that decreases probability that a behaviour will occur.
Reinforcement schedules	A rule of time or frequency that governs when a behaviour will be reinforced and may be either continuous or intermittent.
Continuous reinforcement	Reinforcement occurs following every behavioural occurrence. Overtime stimulus that was rewarding may become less effective at reinforcing behaviour as it becomes less appealing e.g. ice cream becomes less appealing after the tenth one.
Intermittent reinforcement	Reinforcement patterns vary on time interval or frequency and can be scheduled on fixed or variable ratio or interval. Variable schedules tend to be more resistant to extinction due to the unpredictable ratio or interval of reinforcement.
Shaping	Reinforcement delivered in guided gradual stages to develop a specific behaviour response over time.
Relational frame	The pairing of stimuli whereby relations are derived between the stimuli and these relations have the ability to change the nature or function of the stimuli.

One limitation of using behavioural theory for complex cases can be determining the type of conditioning that is maintaining the behaviour of interest when there is the potential for more than one explanation. In keeping with the functional contextualist epistemological position, the analysis is presented pragmatically. Consequences were not assumed to be a reinforcement or punishment of behaviour unless there was evidence of an increase or a decrease in the occurrence of the behaviour. Ideally hypotheses related to the reinforcement value of consequences should be tested with the participant for accuracy and consensus. However, testing hypotheses was beyond the scope of the current study, hypotheses were discussed in supervision and triangulation was used to assess the hypotheses for the retrospective analysis.

Results

3.1: Individual Results and Discussion of Analysis

The joint results and discussion section comprises of the MSFA sequences for each participant (see tables 12-14). The individual MSFA sequences are preceded by a brief contextual summary of the participant and followed by an analysis and discussion of the case formulation which is intended to outline the key behavioural principles in developing the MSFA.

Covert and overt behaviours have been separated in the sequences for pragmatic reasons despite these being considered to be parallel events (Skinner, 1974). Overt behaviours have been presented following covert behaviour for ease, this does not suggest any causality or that internal events are separate to external events. Furthermore, emotions would typically be considered to be a combination of context, behaviour, physiological arousal and cognition from a behaviour perspective. However, in the current analysis emotion has been included under covert behaviours using descriptive emotion labels (e.g. anger).

Ben. The analysis presented in Table 12 is the completed MSFA for Ben. Ben is a 51 year old white British male. He was hearing at birth and lost his hearing aged two years due to meningitis, his language is BSL, he sees himself as part of the Deaf community and he does not wear a hearing aid. He is diagnosed with paranoid schizophrenia and has been in secure psychiatric hospitals for the last 24 years, following his index offence.

Ben's experiences of voices started when he was aged 23 years. He describes the voices as being located inside his head and emanating from his stomach, he has described

these as a fluttering in his stomach which then give him voices/ messages in his brain. The hallucinations that are located inside his head are described as words whereas the voices that he described as sensations inside his stomach are experienced as feelings. He reported multiple voices of both male and females; he explained these as being the voices of prison guards. Other hallucinations reported include hearing keys inside his head; when he was in prison he reported hearing keys being jangled in a teasing manner. However, he described he could 'feel' the keys and it appears that he did not experience any 'true' auditory hallucinations.

Table 12

MSFA for Ben

Childhood experiences- Ben was in hospital for two months aged two with meningitis, during which time his mother was unable to visit because she was pregnant. When he returned home he could no longer hear and there was a new baby. His impaired communication and new negative behaviours (banging his head and being aggressive towards the baby) impacted on the attachment between Ben and his mother. During his childhood/adolescence his mother also had approximately 10 psychiatric admissions. Ben attended a deaf residential school aged five years but his siblings attended a local school and lived at home. The school had a predominantly oral based approach and he was placed in a remedial (sign based) class after struggling in the oral classes. After being deaf in a home environment where his family could communicate effectively with him he was exposed to sign communication and interaction with deaf children for the first time.

MSFA 1- Childhood experiences

Antecedents

- Loses hearing and his mother cannot visit the hospital.
- Attends a Deaf residential school aged five years, returning home at weekends.
- Placed in the remedial sing based class.
- His mother's absence from the home when she is in hospital is not explained to him.

Behaviours

Covert-

- Feels that it is unfair that he has to attend a residential school due to being deaf and that he is treated differently to his hearing siblings.

- Hearing people are lucky/ had it easy because they got to go home.
- Sense of helplessness and having no control in his life- 'I am deaf that is just the way it is'.
- Feels abandoned.

Overt-

- He establishes a role as being mischievous at school and with his peers, he starts misbehaving (minor acts, such as writing on the board).
- He withdraws and isolates himself when at home, spending increasingly more time in his bedroom
- His relationship with his Mother and sister becomes increasingly difficult and stressful when he is at home and he is aggressive towards his mother.
- Sets a number of small fires at school that cause no damage (without getting caught).

Consequences

- Gets into trouble at school for misbehaving which contrasts to his home environment where he never got in trouble due to limited interaction and communication barriers.
- Peers praise him when he gets into trouble by staff.

Key Learning

- Life is unfair (being treated differently to siblings).
- Signing is inferior to oral communication; signing means I am less able.
- Getting attention from being in trouble is better than nothing and can gain popularity.
- Hearing people are lucky/ have it easy.
- Being deaf means being powerless and sent away because family cannot cope.
- Setting fires can provide control and stop negative feelings and boredom.

Prodromal- When Ben left school he had limited reading and writing abilities and he returned home with no preparation for the adult hearing world. His family were still unable to communicate meaningfully with him and he had lost all of his deaf friends from school who he found it easier to communicate with.

Ben reported that he struggled to find employment on his own, employers could not meet his needs which led to difficulties in sustaining employment and he was directly told that he would not be employed due to being deaf. He did not know anybody who was Deaf and had a successful and skilled career and this led him to believe that it is not possible for a

deaf person to find a good job. His frustration about his circumstances and low income led him to take odd days off work and he became aggressive at times in the work place and he was fired from his last job as a result.

MSFA 2- Prodromal

Antecedents

- Leaves the deaf residential school.
- Lack of deaf role models.
- Can only find employment in minimum wage jobs.
- He is sacked from his job.

Behaviours

Covert-

- He feels frustrated and hopeless due to lack of support and low income, attributes this to being deaf and believes that deaf people cannot get good jobs and this is 'unfair'.
- Feels disempowered and that he has no control and believes that the world is against him and deaf people are disadvantaged.
- He wants more money.

Overt-

- He is passive about his circumstances; he does not seek help or complain about the lack of support and discrimination experienced in finding employment.
- He begins to drink heavily.
- He commits six offences; he sets two large fires causing damage to school property and four attempted bank robberies.

Consequences

- He is arrested and admitted to a psychiatric service for one year following the arson offence.
- He initially receives a suspended sentence for two attempted robberies which he breaches the conditions of with a further two attempted robberies and is arrested and starts a six year prison sentence.

Key Learning

- Being deaf means having low income jobs.
- Strengthened sense that hearing people have it easy.
- Consolidated learning that setting fires can provide control and stop negative feelings and boredom.

- Committing robberies can provide money.
- Consolidated learning that when people cannot support him he is sent away.

Early onset of psychosis- Ben's feelings of stress and frustration in relation to his employment, living and financial difficulties had reduced but he was isolated in prison. There was only one other deaf individual in the prison for a period of time. The only communication support he was offered for him to improve his ability to communicate with the other deaf prisoner, communication support was not provide for him to interact with hearing individuals.

MSFA 3- Early onset of psychosis

Antecedents

- Isolated in prison.
- No communication support.

Behaviours

Covert-

- Feels conflicted about being in prison because of the sense of safety and security it provides him but he also feels isolated, depressed, irritable and angry.
- Onset of voices that are experienced as powerful, strong, angry and horrible towards him (teasing him), emanating from his stomach. Believes the voices were prison officers telling him that he is "bad" and that "they do not like him".
- Feels paranoid (about the voices).
- Feels frustrated and fed up because the voices are perceived to be incessant.
- Feels fed up of being in prison but feels safer in prison.

Overt-

- He develops a coping strategy for managing the distress caused by his voices, he would shout back and swear at the voices, banged his head, broke things in his prison cell and attempted to spit the voices out.
- Informs professionals he is feeling isolated due to having no one to communicate with but refuses help with learning how to communicate with deaf people.
- He is unable to communicate his experiences of voices.

Consequences

- He is offered communication support to communicate with another deaf prisoner.

Key Learning

- Prison is safer and more containing than being in the community.
- It is not worth asking for help it will not be provided.
- Others will not adapt, deaf people are expected to adapt for hearing people.
- The world is a lonely place if you are deaf.
- Coping strategies (banging head etc.) can help reduce negative feelings.

Coping in the community- Queries about Ben's mental health were raised in prison, however, attempts to assess his mental state were unsuccessful and he was released back into the community without any additional support or information regarding mental health services. It is possible that Ben's lack of support was further impacted by his deafness and limited access to information and knowledge about seeking help as it appeared that he had a lack of awareness about the resources available to him. For example, reported that he was unaware that you could go to the GP for stress, he believed that you only see a GP if you are physically ill. Following his release from prison Ben moved into his Mother's house and felt that he was no longer able to use his coping strategies that he had found helpful in prison.

MSFA 4- Coping in the community

Antecedents

- Released from prison.
- Moves into his Mother's house.

Behaviours

Covert-

- Worries if he uses the coping strategies he used in prison (i.e. banging head and breaking things) his Mother will know something is wrong and reject him.
- Feels frustrated that he cannot use his coping strategies.
- Increased distress and anger as his voices increase in frequency and intensity.
- Feels paranoid about voices.
- Believes the voices are police/ prison officers
- Decides to scare the voices by committing a serious offence.

Overt-

- He does not use any of his previous coping strategies for his voices.
- Isolates himself.

- Covers up his symptoms.
- He commits his index offence less than a month after his discharge from prison.

Consequences

- He is recalled to prison then transferred to a high secure psychiatric service.

Key Learning

- Strengthened belief that being deaf means being powerless.
- The only way to improve my circumstances is to commit an offence.
- Consolidated learning that; I cannot cope in the community, any institution (even prison or a psychiatric service) is better than being alone in the community.

Admission to a high secure psychiatric service- Instead of returning to prison Ben was admitted into a high secure service due to being assessed to be experiencing mental health difficulties. He experienced increased restrictions placed on him than when he was in prison and the regime of the ward prevented his behavioural pattern of isolating himself from others.

MSFA 5- High secure psychiatric service

Antecedents

- Assessment that his mental state requires psychiatric input and admission to high secure psychiatric service.
- The voices call him dangerous for committing a serious offence.
- Change of regime prevents isolation.

Behaviours

Covert-

- He feels proud that the voices called him dangerous but he feels angry that the voices have not stopped.
- Feels powerless in high secure services because of the increased restrictions and he cannot isolate himself and wants to return back to prison.
- Thinks he is being ignored by staff and treated as though he is less important.
- Suspicion towards staff and anger.
- Worries he is not liked.
- Feels "bothered" by another patient.

Overt-

- Discloses experiences of voices for the first time.
- Attempts to isolate himself and has minimal communication with staff and patients.
- Stabs another patient (that had been "bothering him") in an attempt to be returned back to prison.

Consequences

- He is diagnosed with paranoid schizophrenia.
- Staff often have to initiate communication.
- He does not return to prison, he loses privileges and receives an additional conviction.

Key Learning

- There is no way to return to prison, being violent will only lead to more time in services.
- The voices cannot be scared away.

Access to Deaf services- After 9 years he is transferred to a Deaf unit (within the same service) that comprises of patients who are d/Deaf and staff who sign. A culturally Deaf environment is supported through BSL communication and a Deaf club. Due to progress in increased communication with other patients and staff and engagement in rehabilitation activities and Deaf club he is transferred to a medium secure Deaf service (after 18 years of being in the high secure service).

MSFA 6- Access to Deaf services

Antecedents

- Transferred to a Deaf unit in high secure service.
- Transferred to a medium secure psychiatric service.
- Increased communication support.

Behaviours

Covert-

- His anxiety decreases.
- Increased sense of achievement about his progress.
- Feels like he has a role/ purpose and something to lose if he were to offend again.
- Voices reduce.
- Feels powerful.

- Reduced worries of being ignored.

Overt-

- Increased communication with staff and patients
- His behaviours become more settled (observed by staff).
- He re-engages in the Deaf community and with other Deaf people.
- Increased engagement in positive social interaction, rehabilitation activities and opportunities for communication.

Consequences

- He is known as the patient "who is doing the best"- positive identity is ascribed to him.
- He is provided with a choice about transferring to a low secure service or remaining where he is with increased privileges and stays at the medium secure service.

Key Learning

- Being Deaf and signing can be positive.
- Consolidated learning that being in an institution is safer and more containing that being in the community.

Discussion of Ben's MSFAs. There was a theme of persecution developing throughout Ben's life that appears to have been shaped by his experiences of feeling disadvantaged and discriminated against in relation to his deafness. His exclusion from family life due to communication barriers could also be considered to have shaped his sense of paranoia and suspicion in relation to his belief that he is ignored.

Childhood experiences. Ben's experience of having to go to a residential school developed a sense of helplessness and a belief that he is disadvantaged against because he is deaf and hearing people are lucky by comparison. He established a relational frame in which deafness is paired with stupidity after he is placed within the remedial (sign based) class and subsequently develops a conflict about his identity in relation to his deafness and belonging to either the deaf or hearing communities. Being with deaf peers brings positive social interaction but he associates needing to sign with being stupid. The limited communication available to him in his home environment restricts his ability to learn about and communicate his internal experiences.

The role he developed with his peers as being mischievous is appeared to be positively reinforced through his peers providing him with a sense of power but positive

punishment of getting into trouble at school decreases the overt mischievous behaviour. He develops new strategies of fire setting to feel powerful. It is hypothesised that fire setting behaviour is reinforced through two different reinforcement contingencies; fire setting reduces feelings of helplessness and negative affect or boredom linked to feeling fed up. Therefore, fire setting behaviours appeared to be negatively reinforced by the alleviation of negative affect. In addition, fire setting provided him with a sense of control and feeling powerful, positive feelings he did not get elsewhere. Therefore, positive reinforcement may have also increased fire setting behaviours.

Prodromal. Ben's sense of being disadvantaged and 'disempowered' because he is deaf is hypothesised to be positively reinforced by the discrimination he experienced in finding employment. It was also hypothesised that the lack of support and discrimination he experienced in finding employment also reinforced his sense of powerlessness and influenced the development of a passive victim role and learned helplessness. His offence behaviours appeared to have been reinforced through two different contingencies; it is positively reinforced through the sense of power, control and achievement he experienced and pride of getting away with the first arson. In addition his offence behaviours were negatively reinforced through the removal of his financial difficulties. Returning to an institutional setting may have provided him with the containment and structure he had when at residential school. It is hypothesised that the sense of containment that being in an institutional setting provided him may have reinforced his sense of not being able to work his own way out of his negative circumstances without going into prison/ psychiatric services.

Early onset of psychosis. Ben's experience of voices as powerful and angry reflect his increased sense of powerlessness and injustice/ disadvantage related to being a deaf man. At this point in time his anger and perceived disadvantage is related to the prison staff not making an effort to meet his needs. When Ben informed the staff that he felt isolated the prison suggested that he improved his ability to communicate with another deaf prisoner rather than adapting their ability to communicate with him. From the information available the voices appeared to be non-specific to deafness or Deaf culture, his voices can be better understood in a context of disadvantage. His experiences of voices can therefore be considered to have been shaped by his context at this time. Furthermore, the position of staff that he should learn how to improve his signing may have reinforced the association of deafness he had made in his early developmental history and pairing of deafness with stupidity due to anxiety about being viewed as stupid if he signed. Subsequently he rejected

the deaf community, did not identify with deaf people or Deaf culture and his sense of isolation was reinforced. His behaviour of asking for support is hypothesised to have decreased through punishment due to his negative experience of asking for help being unsuccessful, this appeared to lead to the development of passivity and learned helplessness and the key learning that it is not worth asking for help.

The limited communication available to Ben meant that his ability to learn about and communicate his internal experiences continued to be restricted due to limited opportunities for staff to explore his thoughts and emotions. As a result he had no framework to understand or communicate his experiences of voices and he is not able to make professionals aware of these experiences or the context of his distress, limiting their ability to support him.

Coping in the community. Ben's learning history so far is that when things are not working at home he is sent away; school, psychiatric services or prison. It is hypothesised that this learning history influenced Ben's behaviour of hiding his distress and not disclosing his experiences of hallucinations due to fears that his family would reject him. Ben's inability to use the coping strategies that he had previously found helpful appeared to reinforce his sense of powerlessness in relation to the voices.

It is hypothesised that his offence behaviours were negatively reinforced when he returned to prison through the removal of negative affect and distress related to his perception that he was not able to cope on his own. However, his sense of helplessness also appeared to be reinforced as he had no sense of agency in how to improve his circumstances other than returning to institutional settings and he therefore locates control externally.

High secure psychiatric service- Ben's resistant behaviour against the voices (attempting to scare them away) is positively reinforced when they call him "dangerous" which makes him feel proud and powerful. By contrast, he had a sense of suspicion that was related to feeling ignored by staff which made him think that people did not like him, a concern that was reflected in the content of his voices.

There appeared to be two reinforcement contingencies in operation for his violent behaviour; negative reinforcement through the removal of the patient who was 'bothering' from his environment, however, positive punishment decreased the likelihood of him repeating the behaviour after he received a further conviction increasing his sentence.

His diagnosis and the medical model bypass the need for professionals to understand his hallucinations and their content due to the focus of his psychiatric assessment being placed on the presence of hallucinations rather than their personal meaning. As a result he continued to lack a framework to understand and communicate his experiences.

Access to Deaf services. Ben's pairing of deafness with stupidity weakened due to the normalisation of signing in the Deaf services. It was only when he moved to the specialist Deaf unit that he learned that signing can be accepted by both d/Deaf and hearing groups and is used by individuals with a range of abilities. As a result, Ben's conflict related to deafness appeared to reduce, he became more accepting of his deafness and Deaf culture and developed a Deaf identity, subsequently his distress reduced and he experienced a reduction in the frequency of his voices.

Missing information. It is important to note that it was not possible to gather information on why Ben believed the voices were those of the prison guards/ police officers. Furthermore, it was not possible to gather detailed information related to the content or themes of his hallucinations beyond them being "horrible", "teasing" and saying that he is "bad" and "not liked".

Difficulties encountered. Ben had limited non-manual features; in BSL, in addition to signs, information is communicated through facial expressions and lip movements etc. However, Ben had very limited expression in these areas, presumably due to his limited language development during childhood. The limited expression observed during the interview reflected reports from professionals that he uses minimal signed, facial expression or body language indicators of being upset or annoyed and struggles to communicate feelings. This impacted on the information gathered during the interview process as it limited the context around what he communicated. Ben also answered in very concrete ways and did not provide much information relating to his feelings about various events. It had been reported from other professionals that his understanding is very concrete and that he struggles to understand hypothetical questions. It was difficult to establish a free flowing dialogue due to communication difficulties (separate from the involvement of an interpreter as this was experienced to a greater extent with this participant).

There was little contextual information surrounding his childhood and early life events, it is unclear as to whether this is because previous clinicians have not explored these in depth. At the time that the current consultant psychiatrist became involved his parents were

both dead and he only has the information from previous clinicians regarding his early childhood experiences and relationships within the family. A lack of contextual information and logical inconsistencies made it difficult to formulate.

Michael. The analysis presented in Table 13 is the completed MSFA for Michael, a 38 year old Black British male whose primary language is BSL. He has a diagnosis of schizoaffective disorder manic type and he has had input from psychiatric services since childhood; grandiosity was first noted when he was approximately 16 years of age, he reports onset of hallucinations aged 17 years. Hallucinations have included; multiple voices of both males and females located inside his head that would say things about him (linked to paranoid thoughts of people spreading rumours) and tell him to kill himself. He reported two noises in his ear with corresponding visual images; the first being a machine gun noise with visual hallucination of a machine gun firing; the second was a revving noise linked to his teeth and eyes. He has also experienced visual hallucinations of moving pictures related to religion and god, for example praying and the cross. Delusional beliefs reflect themes of persecution (i.e. people gossiping about him and colluding against him) and grandiosity (i.e. being a famous wrestler).

Table 13

MSFA sequences for Michael

Early childhood experiences- Michael is from a very large family, he is the only child from his Mother's relationship with his biological father, he has eight older siblings who all have the same father and two younger siblings from his Mother's second marriage. His Mother often went to the Caribbean throughout his early childhood, on one occasion she took him with her and then sent him back to England with an adult he did not know. Michael spent long periods of time at his grandmothers whilst his Mother was abroad who neglected him and locked him in a dark room. He reported that his siblings were not left behind with him. Michael was eventually taken into care aged three years old it was only at this point that his deafness was detected and he was provided with support. He received stable care for one year before his mother removed him without permission, at this time he did not recognise her and did not want to go to her. He then spent approximately two years in the Caribbean with no language support or educational input. When he returned to England aged six years he attended a Deaf residential school. The

school comprised of two units, one was for profoundly deaf children who matched his communication needs but had additional physical disabilities. The other unit was for children who had a less severe hearing loss and did not need to sign but were of the same physical ability as Michael. Due to his frustration of being in the unit with children who did not have the same physical ability as him to play sports he was transferred to the unit with children who did not meet his communication needs.

MSFA 1- Early childhood experiences

Antecedents

- Aged 1-6 years he experiences multiple changes of carers.
- Neglect by his grandmother.
- Taken into care.
- Attends deaf residential school.
- Transferred to the hard of hearing unit.
- Bullied by the students once he moves to the second unit.

Behaviours

Covert-

- He feels confused and does not understand the changes.
- Feels anxious.
- He feels unequal to his siblings who attend schools at home.
- He did not want to be seen as a deaf boy, he wanted to be like 'ordinary boys'.
- He feels different to the other children and becomes paranoid about peers colluding against him.
- He finds it difficult to understand and cope in the non-signing environment.
- He feels targeted.
- Feels stupid and inferior.
- Feels sad and alone.

Overt-

- Gestures constantly trying to ask questions.
- Easily becomes excitable about things.
- He is aggressive.
- He develops BSL skills and can communicate better with deaf peers and staff who can sign.

Consequences

- Referred to a child psychologist due to hyperactivity and anxiety.
- People back off from him when he is aggressive.

Key Learning

- Life is unfair (being treated differently to siblings).
- Other deaf children are disabled, being with other deaf children risks being seen as disabled.
- To be deaf is to be inferior and unequal and have no control.
- Being deaf means being different including from family.

Victimisation- There were a number of incidents at school when he got into trouble for doing things that were against the school rules (e.g. taking eggs from the fridge). He also reported incidents when he was blamed by staff for things that he had not done. At times he was sent home but his mother was out of the country and he had to stay with his grandmother who had neglected him.

Michael experienced ongoing sexual abuse by a staff member from the club he would attend, his mother would leave him with this man during weekends and at times when she went on holiday for periods as long as one month.

MSFA 2- Victimisation

Antecedents

- Incidents of being blamed by staff.
- Neglect from grandmother.
- Sexual abuse.

Behaviours

Covert-

- He feels neglected and abandoned by key attachment figures.
- Believes that staff are cruel towards him and do not look after him.
- He believes that staff wrote him off and passed him over for other students.
- Times when he is told off he attributes blame to either being teased by other students or teachers are at fault.
- He feels upset, angry and hostile towards staff.
- Worries that "I am bad" and will go to jail.

- Cannot trust people, feels targeted.

Overt-

- Physical aggression towards staff when they attempt to discuss incidents with him.
- On one occasion he locked himself in his room and threatened to jump out the window.
- On three occasions he drew pictures of himself dead and in jail.
- He becomes increasingly aggressive towards other students.

Consequences

- At times he is punished and made to clean up damage, on other occasions his explanations are believed and he is not punished.
- He is eventually excluded from school for his aggressive behaviours.

Key Learning

- You cannot rely on adults that are meant to keep you safe; they will blame, leave or abuse you.
- People are inconsistent; you cannot predict how they will respond.

Introduction to Deaf culture- Michael started to attend a Deaf club aged approximately 14 years and was introduced to Deaf culture for the first time. His signing ability improved in this Deaf environment and he had positive interactions with other Deaf people. He engaged in social activities organised by the Deaf club and met inspirational public figures by doing this. Michael developed a sense of belonging to the Deaf culture, Deaf people and developed a Deaf identity. The Deaf club provided a sense of culture and community that he felt he had missed out on because he had no knowledge about his family culture, "didn't have a clue really about family culture or heritage".

MSFA 3- Introduction to Deaf culture

Antecedents

Starts attending Deaf club.

Behaviours

Covert-

- He feels encouraged and accepted by Deaf people.
- He develops confidence in a signing environment.
- He is more relaxed.
- Sense of belonging and cultural identity.

Overt-

- Engages in social activities.
- His hyperactivity reduces due to increased stimulation.

Consequences

He is invited to social activities by Deaf friends he has made.

Key Learning

- Signing and being with Deaf people can be a positive experience.
- Deaf people vary in abilities like hearing people do, deafness does not mean disability.

Prodromal- Michael was bullied by hearing 'youths' in a gang in his local area, they would take out his hearing aids, shout at him and tease him, insulting him for being deaf and gestured that he was stupid. An accusation was made against him by a student from his school regarding an alleged sexual assault, when investigated this was found to be untrue but he was still unable to return to school. He was refused college places because they were unable to support his communication needs. When he attended a college course for Deaf students in a mainstream college he was bullied by a student who was part of the local gang who bullied him at home.

MSFA 4- Prodromal

Antecedents

- Bullied and insulted for being deaf.
- Wrongly accused of a sexual assault.
- He is refused college places.

Behaviours

Covert-

- He feels recognised and identified as the deaf boy.
- He feels that he is treated as slow and disabled because he is deaf.
- He feels targeted, believes that he is perceived as weak because he is Deaf.
- He feels ridiculed, 'bad' about himself and frustrated that he was unable to succeed socially.
- Believes it was cruel to accuse him and unfair/ an injustice.
- Feels that attempts to succeed are taken away from him.

Overt-

- He starts to shout back at the bullies and is verbally aggressive.

- When the bullying continues he leaves college.
- He withdraws at home.
- His interest in wrestling develops in an attempt to be seen as strong and successful.
- He begins working out.

Consequences

- The bullies would sometimes look frightened and back off when he shouted at them.
- Increased isolation by the loss of friends from school and loss of college.
- Does not achieve his academic goals.

Key Learning

- Being deaf means being targeted because hearing people think you are weak.
- Strengthened sense that life is unfair.
- Being deaf means having fewer opportunities.
- Strengthened sense of having no control in life.

Early onset of psychosis- Michael returned to live with his mother full time after he had been excluded from school, this was the first time he had lived with his mother since he went to a residential school aged six years. He had no positive activities after he left college and disengaged from the Deaf club due to his experiences of being bullied. There was a significant incident when he was out with his brother and a car of "youths" mounted the pavement and tried to run his brother over. He spent an increasing amount of time at home and became focussed on wrestling, he believed that he could become a professional wrestler and this would provide him with an opportunity to succeed

MSFA 5- Early onset of psychosis

Antecedents

- Living at home with no positive social contact or activities.
- Witnesses a car of "youths" attempt to run over his brother.

Behaviours

Covert-

- He becomes very upset, anxious and "paranoid" about people outside.
- Feelings of "powerlessness of being able to retaliate".
- Wishes to succeed and believes wrestling will help him achieve success.

Overt-

- He withdraws and locks himself in his bedroom.
- He watches an increasing amount of wrestling.
- He goes to a wrestling event with a packed bag and out of date passport in an attempt to convince the wrestlers who are fighting at the event to take him to the USA with them to become a wrestler.
- When he is sent home by security he blames his parents and throws a brick through the window of his family home.

Consequences

- He is arrested and admitted to a psychiatric hospital.

Key Learning

- The world is a scary place.
- Being a wrestler means others think you are strong and will not see weakness.
- Others prevent possibilities for success.
- Strengthened sense of others having control.

Index offence- After a year Michael was discharged from the inpatient unit to a hostel where he experienced difficulties with his finances due to not receiving his benefits. Michael was frustrated about his financial difficulties and was aggressive towards the staff when they could not help him with his benefits. The police were called and he had to leave the hostel, at which point he moved into the flat of a local woman (Miss X) who took in young people who had substance and mental health difficulties. Miss X encouraged him to stop taking his medication and facilitated his avoidance of psychiatric services telling him that God could cure his mental health difficulties. Out of concern for his mental health his mother and step-father increased their attempts to see him and contacted mental health services informing them that they believed his mental health was deteriorating. As a result mental health services increased their attempts to contact and assess his mental health. During this period he had a girlfriend but they could only communicate through gesture, she became pregnant but it appears that there was confusion about whether Michael was the father.

MSFA 6- Index offence

Antecedents

- The police are called and he has to leave the hostel.

- He is encouraged to stop taking his medication.
- Increased attempted contact from family and mental health services.
- His mother and step-father make multiple attempts to see him.
- He has nobody to support him with experiences of delusions and hallucinations and the distress that these cause.

Behaviours

Covert-

- He experiences hallucinations of religious images for the first time.
- He worries about other men flirting with his girlfriend.
- His paranoid delusional beliefs about others targeting him increase.
- He experiences the onset of voices.
- He experiences paranoia related to the voices.
- His paranoia increases, he believes that people are gossiping about him and that it is Miss X's son who is responsible for spreading rumours.

Overt-

- He is physically aggressive towards his step-father when they visit and are concerned about his mental health.
- He is physically aggressive towards a man who looks at his girlfriend.
- He leaves to stay at a friend's empty flat on his own for a short period to avoid mental health services.
- He drinks more alcohol.
- He goes back to Miss X's flat to confront her son but murders Miss X when he gets there.

Consequences

- The police are called; he resists arrest leading to a physical restraint and arrest in the street.
- His crime receives a lot of media attention.

Key Learning

- Consolidated learning that you cannot trust people, they will do things you do not want them to.
- Committing a serious crime can get a lot of attention from the news; people are interested in me now.

- If I have no control then others are responsible and to blame for wat I have done.

Admission to secure psychiatric services- Following his arrest Michael was admitted to a high secure psychiatric service, after four years he was transferred to a Deaf unit (within the same service) and finally transferred to a medium secure Deaf service after 18 years of being in the high secure service. His Mother and step-father often provided him with contradictory messages when they visited; on one hand they supported his grandiose beliefs related to sports and complained to the service because they had not provided Michael with facilities to train to go to the Olympics. At other times they fell asleep when they visited and threatened not to visit Michael if he said things they did not like. His parents also provided him with unhelpful advice to contact a friend of the victim of his offence which resulted in negative consequences from the staff. He was challenged by staff on a number of occasions and there was also an incident involving a hearing patient who was temporarily on the Deaf unit.

MSFA 7- Secure Psychiatric Services

Antecedents

- Admitted to a high secure psychiatric service.
- Diagnosed with dissocial personality disorder and schizoaffective disorder.
- Contradictory messages from parents.
- Challenged by staff.

Behaviours

Covert-

- Attributes blame externally and viewed change to be located in others changing their behaviours.
- Feels helpless.
- Feels ignored and frustrated because he wants his family to be interested in what he has to say.
- Believes that he could be famous or a professional athlete.
- Perceives staff are being cruel towards him, getting on at him.
- He believes that he is being targeted and discriminated against.
- He believes that staff are unsupportive and that they are deliberately trying to get him into trouble. He also believes that other patients are deliberately trying to provoke him into aggression in order to get him sent back to high secure.

- Feels anxious and worries about hurting others.

Overt-

- He makes threats of violence to staff and patients who he believes are persecuting him.
- Seriously physically attacks staff members on two occasions when 'told off'.
- Tries to please his parents and follows their advice.
- Increase in grandiose comments about being famous, writing a book about himself, becoming a BSL presenter for parliament and gaining a masters degree.

Consequences

- Increased input from staff.
- He is challenged by staff for following family advice and transgressing boundaries with other patients.

Key Learning

- Consolidated learning that you cannot rely on the people who are meant to support/ help you and people are inconsistent.

Discussion of Michael's MSFAs. There was a theme of grandiosity that was seen to develop throughout Michael's life and had been facilitated and reinforced by his parents through an inconsistent pattern of rejection and building up of his abilities. His Mother appeared to have had an inconsistent and contradictory view of him as a disabled boy who cannot do anything versus a son who was physically able to do anything, even becoming an Olympic sprinter. His Mother's view of him as having exceptional potential with regards to physical abilities (e.g. becoming an Olympic sprinter or professional wrestler) appeared to reinforce his view of himself as special and over time the development of delusions of grandeur.

His experiences of being disadvantaged and victimised in addition to his conflict about which group he belongs to (Deaf or hearing) appear to have shaped his paranoia in relation to delusions of persecution and collusion against him. There was a theme of being disadvantaged throughout his learning history, however it was not possible to analyse how his cultural background may have interacted with his experiences of feeling disadvantaged because of his deafness. It is possible that some of his experiences of feeling disadvantaged/ discriminated against may reflect being from a minority group with regards to his cultural background. The communication barriers Michael encountered in the family environment,

however, limited his knowledge of his family culture and this may have impacted on his ability to communicate and differentiate these two cultural identities when discussing his experiences.

Early childhood experiences. Michael's experience of his peers either being profoundly deaf as he was but also physically disabled or hearing impaired but of the same physical ability as him appeared to influence the development of a relational frame in which deafness was paired with disability. From the analysis, this appeared to lead to the development of a conflict about his identity in relation to his deafness, the increased social interaction and communication with peers through BSL was a positive experience for him, however, the negative association Michael had made between individuals who are deaf and communicate using BSL and disability led to the sense of being a 'misfit'.

Michael developed an external attributional style and sense of powerlessness/ helplessness related to the perceived injustice and disadvantage he experienced because he is deaf (e.g. having to go to a residential school). His sense of being a misfit and being different to both groups of children appeared to influence the development of a sense of paranoia related to worries that peers were colluding against him.

He experienced years of language deprivation prior to starting school aged six years and his family were unable to communicate with him beyond gestures. As a result he had limited opportunities to learn about his and other people's internal experiences and how to communicate his thoughts/ emotions.

Victimisation. It was hypothesised that his external attributional style and paranoia about being targeted/ colluded against was strengthened when he was blamed for incidents that he had no involvement in. He was sometimes believed but at other times he was not and was disciplined, an intermittent reinforcement schedule was therefore in operation. It is hypothesised that this key learning led to the development of expectations of punishment and a negative self-concept. The prolonged sexual abuse he experienced will have further reinforced his perception of being targeted and paranoid thinking style.

Introduction to Deaf culture. It was only after Michael attended a Deaf club that he learned that signing can be positive and the use of BSL was normalised due to individuals of all abilities communicating in this way. It appeared that the normalisation of BSL and positive social interactions at the Deaf club weakened the pairing of deafness with disability.

His involvement in the Deaf community is hypothesised to have been negatively reinforced by the alleviation of negative affect, his worry and stress appeared to reduce due to an increased understanding of what was happening around him and an increased understanding of self. In addition his involvement with the Deaf club is hypothesised to have also been positively reinforced due to increased social interaction.

Prodromal. Michael's external attributional style and sense of injustice appeared to be reinforced as even when he was believed that he did not assault the girl he was punished because he was not permitted to return to school. His paranoid thinking style appeared to increase related to beliefs that he was recognised and therefore victimised and targeted because he is deaf. His sense of being targeted in addition to being refused college places because they could not support his communication needs is hypothesised to have reinforced his sense of disadvantage and victimisation because he is Deaf.

Early onset of psychosis. His sense of being targeted is hypothesised to have been positively reinforced when he was out with his brother and a car attempted to run his brother over. He appeared to develop a passive response by withdrawing and locking himself in his bedroom and his sense of helplessness was therefore reinforced. The development of grandiosity appeared to be shaped by his context at this time, it is hypothesised that he attempted to protect himself from a continued sense of failure and low self-concept by viewing himself as special and locating blame for his failure to achieve success externally as the world was holding him back.

Index offence. He developed visual hallucinations and the nature of these can be considered to have been shaped by the context of his religious environment in which he was living. His increased paranoia and beliefs that people were gossiping and colluding against him (developed during his earlier learning history) are hypothesised to have been positively reinforced by the repeated and increased attempts of his family and psychiatric services to get in contact with him. His grandiosity is also hypothesised to have been positively reinforced by the media coverage following his index offence.

Secure psychiatric services- He externalised blame for his index offence and he struggled to consider his own potential risk, as a result he considered his detention to be unjust. This appeared to reinforce his feelings of injustice and learned helplessness. His paranoia about being targeted is hypothesised to have been positively reinforced by the

change of behaviour of staff towards him; as feelings of persecution (being discriminated against) increased so did his grandiosity.

His diagnosis and the medical model mean that emphasis was placed on the presence of symptoms rather than the content and meaning of his hallucinations. As a result he continued to lack a framework to understand and communicate his experiences.

Missing information. There was no information related to the content of voices or there context as a result a formulation of how these have been shaped was not possible.

Difficulties encountered. Michael was often incoherent in his narrative, jumping from topics without any clear links and providing limited contextual information with logical inconsistencies. The difficulties observed in the interviews also reflected accounts made by staff members in his records including an assessment by speech and language therapy highlighting his difficulties in linking concepts together in order to generate and sequence a coherent narrative.

Michael was also unable to provide information regarding the content of his voices and exploration of the content and meaning of his hallucinations and delusions did not appear to have been covered in depth during his time in psychiatric services. On reviewing his psychiatric and psychology reports reflected a focus on his offence behaviours rather than his experiences of, and distress related to, hallucinations and delusions.

Aiden. The analysis presented in table 14 is the completed MSFA for Aiden, a 37 year old white British male who communicates using a combination of BSL and lip reading/ speech. Unlike the other participants Aiden had an older sibling who was also deaf and he was therefore not the only individual in the family who was deaf and communicated by sign language. Furthermore, his mother and sister also learned sign language and attended a local Deaf club with Aiden and his brother, a marked difference to the other participants whose families could not communicate using BSL. He has intermittently used hearing aids throughout his life and aged 12 years he was fitted with a cochlear implant. Aiden was the only participant that did not identify himself as being culturally Deaf and this may have been influenced by his family's view of his ability in comparison to his brother. From the professional interview it appeared that Aiden's family had difficulty accepting his needs as a deaf man despite accepting his brother's deafness and cultural Deaf identity. Being fitted with a cochlear implant that restored a limited amount of hearing may therefore have led his

family to differentiate Aiden from his brother who was never fitted with a cochlear implant. This differentiation from his brother as having different needs in relation to their deafness appears to have also reinforced Aiden's perception of himself as more able than his d/Deaf peers. Aiden provided the opportunity to explore the impact of different communication and environmental experiences.

Aiden has a diagnosis of paranoid schizophrenia; he reports hallucinations of voices, screeching noises and visual hallucinations of distorted shapes and spirits which started approximately aged 23 years. Aiden also experiences delusional beliefs which reflect themes of persecution related to being followed and targeted and grandiosity concerning scientific inventions and being a model.

Table 14

MSFA for Aiden

Early experiences- He was singled out by his father for physical punishment and abuse including being locked in a dark chest by his father and he reported that his father did not give him toys on his birthday or at Christmas but he did give toys to his siblings. He also reported being sexually abused by a babysitter during his childhood. He attended a Deaf club with his mother and siblings but his father did not attend or learn to sign. His parents separated when he was aged 10 years, after his father moved out his mother became increasingly more distant from the children.

With regards to his education, he attended a mainstream primary school with support and a secondary mainstream school with a specialist Deaf unit where he was bullied by hearing peers who called him "Deaf lugs". His only friends at school were the other two deaf children.

MSFA 1- Early experiences

Antecedents

- Singled out by his father.
- His father does not engage in the Deaf community or learn to sign.
- A babysitter sexually abuses him.
- Parents separate.
- Bullied by hearing peers at school.
- Befriended by the other two deaf children.

Behaviours

Covert-

- He feels different.
- He does not feel accepted in hearing environments.
- He feels lonely.
- He believes that he is "easy prey" and "I am preyed upon".
- Believes that he is "worthless".
- Thinks that if he could hear better his father would love him more.
- He enjoys Deaf club and the positive social interaction, he feels accepted by Deaf people.
- Sense of enjoyment of being able to join in conversations with deaf peers at school, feels he misses out on conversations with hearing people but resents only being able to make friends with the other deaf children and thinks they are "a bit thick".

Overt-

- He withdraws and develops an interest in science to escape his loneliness and the bullies.
- Develops humour/ jokes as a way to fit in.

Consequences

- He develops a role as the 'joker', hearing people laugh at his jokes.
- Increased distance from deaf people who do not understand his jokes.
- Extra science activities remove opportunities to be bullied.

Key learning

- Life is unfair (being treated differently to siblings).
- To be deaf is to be different.
- Being with hearing children risks being bullied and rejected but being with other deaf children risks being seen as stupid.
- Science keeps me safe.

Receiving a cochlear implant- Aged 12 years he was fitted with a cochlear implant. He believed that the implant would restore his hearing to a high level and that it would not be visible and was angry and disappointed when he found neither of these to be true. Furthermore he had to attend speech and language therapy and leave class to tune the

device which impacted on his school grades. Deaf people at the Deaf club were "dismayed" that he had a cochlear implant and he stopped engaging in the Deaf community. His brother did not receive a cochlear implant and his family appear to have differentiated Aiden and his brother, his brother was viewed as being deaf but Aiden was seen as being able to cope in the hearing world.

MSFA 2- Receiving a cochlear implant

Antecedents

- Fitted with a cochlear implant.
- Has a "big scar" following the operation.
- Misses class to tune the implant.
- Negative reactions from Deaf friends.
- Finds it difficult to get appointments at the hospital.
- His GCSE grade results are lower than had been expected.
- He is treated differently to his deaf brother.

Behaviours

Covert-

- He feels rejected by Deaf people.
- Feels angry unsupported by the hospital.
- He is angry and disappointed because he thought the device would be discreet but he has a "big scar".
- Blames his cochlear implant for not getting the GCSE grades that he had expected.
- He does not feel like the cochlear implant is part of him and that it does not function properly.
- Views himself as superior and less deaf than his brother.

Overt-

- He gradually withdraws from the Deaf community.
- He stops wearing the outer piece of his implant regularly.
- He does not train his hearing to the device fully.

Consequences

- He is not able to make full use of the device or the increased hearing this could provide.
- He is isolated from the Deaf community.

Key learning

- Strengthened sense that life is unfair.
- Trying to succeed and fit in in the hearing world means being rejected from the Deaf community.
- Having a cochlear implant means you are a misfit, neither hearing nor deaf and it is difficult to belong to either group.
- People will not support you.

Attempts to be independent- He lost contact with his deaf friends when he left school and never saw them again after his last day at school. It is reported that his mother experienced depression and she became increasingly distanced from Aiden and his siblings. He was removed from the home environment by social services due to neglect and lost contact with his mother for seven years. He lived independently in a new area and had limited relationships, his siblings had established relationships and lives independent of Aiden and he had limited contact with them. He had one girlfriend aged 18 years but this was not a sexual relationship, he attempted to establish another romantic relationship but was unable to and had multiple one night stands with women he met in nightclubs. He experienced a brief period of success when he went to college to complete NVQ levels 1 and 2 in food and hospitality then procured a job as a chef. However, he struggled living on his own due to the financial costs and found himself socially isolated.

MSFA 3- Attempts to be independent

Antecedents

- Isolated in a new community with no deaf friends.
- His siblings establish successful relationships and jobs and reduce contact with Aiden.

Behaviours

Covert-

- Feels stressed about his financial responsibilities of paying for bills on his own.
- Feels isolated.
- Feels sad that he is unsuccessful in getting a girlfriend.
- Feels like a 'misfit'.

Overt-

- He gets a dog in an attempt to meet more people.
- Starts drinking more alcohol.

- Starts taking drugs

Consequences

- His substance use and the additional financial burden of having a dog reduces his financial means to engage in other activities.
- He is more isolated.

Key learning

- People reject and abandon me.
- Being deaf and having a cochlear implant means being isolated, alone and disadvantaged.

Prodromal- He started to drink an increasing amount of alcohol and went to nightclubs in an attempt to socialise and meet people. On one night he was raped by a man from a nightclub, he believed that his drink was spiked. After he was raped and due to ongoing harassment from children where he lived who would throw stones at him, he decided to move away and returned to the area where he grew up and it appears he was initially homeless. He re-established a relationship with his mother after he saw her in a bar and later moved back into her house. After he moved back to the area where he grew up he worried that he would be recognised as "the deaf boy" by people who knew him from school. He started to work with his father as a plasterer but he would hit Aiden when he did things wrong.

MSFA 4- Prodromal

Antecedents

- Sexually assaulted aged 20 years.
- Children in the local community throw stones at him.
- Homeless.
- Living with his mother after seven years of no contact.
- Physical abuse from father at work.

Behaviours

Covert-

- He worries that if he tells the police about the rape that they will laugh at him.
- Feels frightened all the time.
- He feels hopeless and that the rape stripped him of his dignity.
- "Seething with rage" towards himself because he had "done nothing about it".

- Feels worthless.
- Feels confused about his poor relationships with his family.
- Feels recognised as "the deaf boy from school".
- Worries he is being followed.
- Believes that he is targeted by gay men.
- Feels he has no good things in his life and whenever that he does have something it is taken away.

Overt-

- He does not tell anybody about the sexual assault.
- He stops working.
- He attempts to change his appearance in order to not be recognised as "the deaf boy".
- Increases drug use including magic mushrooms and ecstasy.
- He withdraws and isolates himself at home in his bedroom, locks his door and has his curtains shut.

Consequences

- He is not supported by police, family or friends after he is raped.
- Loss of financial income.

Key learning

- Strengthened sense that people will not support you.
- Consolidated learning that life is unfair.
- The world is an unsafe place.
- People cannot be trusted, they will hurt you.
- Strengthened sense that being deaf means being isolated, alone and disadvantaged.

Early onset of psychosis- During this period he was unemployed and his frustration related to his cochlear implant increased when he blamed it for his difficulties in finding employment and believed his scar made him recognisable as being deaf. Aged 22 years he went to the audiology department, without an appointment, where he had appointments for his cochlear implant as a child and asked them to remove the device. The audiology department were unable to see him and he had to leave. He reported one occasion when he was walking in a remote area two police officers approached him and asked if he was O.K.

MSFA 5- Early onset

Antecedents

- The audiology department asks him to leave.
- He is unemployed.
- Two police officers approach him.

Behaviours

Covert-

- Feels lost, hopeless and as though "nobody cares about me".
- Believes the implant is a "hex" on being able to get a job and cochlear implants are "a crime against society", "Why did they take my life"?
- He is confused "why are they still putting them into other people" and angry thinking "how many lives must they ruin before they get the message".
- Wants to bomb the audiology department to prevent other children getting cochlear implants and make a "political statement" because he believes that "Society isn't treating me right".
- "If I blow up the implant service people will know I want my implant out", I will be taken away somewhere more peaceful and I might make friends in prison.
- Onset of hallucinations of loud screeching noises located in the centre of his forehead that last for two weeks and visual hallucinations of distorted shapes.
- Delusional belief that the government want to control him through his cochlear implant and that "there is something wrong with me" because I cannot get a job or a girlfriend.
- Delusional belief that he is a male model and a doctor's apprentice.
- Paranoid thoughts that he is being followed by gay men and by the police because he believes the police think he is "not fit to be in human society".

Overt-

- Starts drinking heavily, 10-12 pints a night on five days of the week.
- Aged 23 stops using his implant completely.
- Withdraws and isolates himself in his bedroom.
- Neglects himself, does not attend to personal hygiene or appearance.
- He does not tell anybody about his hallucinations or paranoid feelings.
- Researches how to make bombs on the internet.
- Attempts to make a bomb in his bedroom.
- Stabs his mum's fridge with a knife out of frustration.

Consequences

- His mother does not know about his experiences of hallucinations.
- The police are called to his house after he stabs the fridge and find evidence of bomb making.
- He is arrested and admitted to a psychiatric service.

Key learning

- Strengthened sense that life is unfair.
- Hearing society is against deaf people, cochlear implants are evidence of this.
- Strengthened sense that it is not worth asking for help it will not be provided.
- Consolidated learning that people will not support you.
- Strengthened sense that being deaf means being disadvantaged and targeted.
- Violence is the only way to be heard.

Admission to psychiatric services- He was admitted to a psychiatric service for the first time following the discovery of his attempts to make explosives. After approximately three months he was transferred when the service was made aware that he had written a letter to his sister instructing her to blow up the audiology department and it was felt that the risk was too great to continue to treat him where he was because the audiology department was on the same site. The service he was transferred to had a Deaf unit and he was in an environment with other d/Deaf individuals for the first time in years, there was increased communication support and individuals can sign with him. However, a patient signs sexual comments to him and he considered the other patients BSL ability to be at a lower level. He was diagnosed with a mental health disorder and had psychiatric input, however, this focussed on his offence behaviour. He was prescribed psychiatric medication; however, he developed seizures as a side effect and was prescribed additional medication, anti-convulsants.

MSFA 6- Admission to psychiatric services

Antecedents

- Admitted to a psychiatric service.
- Transferred to a high secure psychiatric service.
- Diagnosed with paranoid schizophrenia.
- Prescribed medication.
- Develops seizures.

- Other patients ask him personal questions.
- A patient signs sexual things to him (e.g. “suck my willy).

Behaviours

Covert-

- Visual hallucination of silvery images and ghosts and hallucinations of voices described as making drilling noises he links to his cochlear implant and being “embarrassing and personal”.
- Believes “the government have a conspiracy to make people hear what they say and they make them have cochlear implants”.
- He believes the staff are not helping or supporting him.
- He thinks the other deaf patients are “dumb and useless”.
- Grandiose delusions about inventions.
- Believes that there are homosexual patients who want to sexually assault him in the night and he wants to make himself more unattractive.
- Feels vulnerable.

Overt-

- He sleeps more in the day, grows his beard and sleeps fully clothed at night.
- He withdraws from other patients.
- He subverts security to order books related to bombs and inventing devices.
- He tells people he could use brown sauce to make explosives.
- Writes a letter to his mum asking her to sneak chemicals into the hospital so he could make a bomb to kill the staff.
- He sneaks potential weapons into his room (a cross stitch needle and a six inch piece of wood).
- He informs people of inventions he would like to patent.
- He asks to write to the RAF proposing his idea of how to change the way the world exists.
- He spends a long time pacing the ward and staring.
- He seeks out unusual topics to read and learn about.

Consequences

- Other patients cannot communicate with him about his interests, they become irritated with him and stop trying to interact with him.

- Staff suspend his grounds leave.

Key learning

- Consolidated learning that it is not worth asking for help, it will not be provided.
- Reinstated belief that being deaf risks being seen as stupid and less able.
- Learning and talking about science means intelligence and therefore prevents being seen as being stupid.
- Interest in science and unusual topics keeps other patients away.

Decisions to transfer- The psychiatric service decided that Aiden should be transferred to a medium secure service due to progress he had made with regards to increased communication with staff and engagement in rehabilitation activities. Aiden and his family stated that they did not want him to move to a service that was further away as it would limit the family's ability to visit. However, due to limited Deaf psychiatric services, he was transferred to a service that was further away from his family against his wishes and he experienced a relapse of his mental health after he was transferred. There were a number of incidents on the unit and he remained dissatisfied with his medication. The Deaf service were able to meet his communication needs and facilitated increased engagement in positive activities and the staff team suggest that he could be transferred to a low secure service.

MSFA 7- Decisions to transfer

Antecedents

- Transferred to a medium secure Deaf service.
- A patient urinates on his shoulder in the day area.
- His hair is shaved too short revealing his scar.
- Increased community leave.
- Staff suggest he is transferred to low secure.

Behaviours

Covert-

- Feels worthless because he is a mental health patient and that his future is hopeless because others will reject him if they learn about his forensic and mental health history.
- Believes people are cruel and the world is unfair.
- Believes that people are out to get him.
- Worries children will laugh at his cochlear implant scar or he will be exploited when

out in the community.

- Worries he will be put on more medication if he tells a doctor he feels "shaky and emotional".
- Believes that people want to take advantage of him or mistreat him.
- He does not want to be transferred to a low secure service because he will have to "start all over again".

Overt-

- Withdraws from staff and other patients.
- He does not inform the psychiatrist about the deterioration in his mental health.
- He secretes a length of rope, cross stitch needle and crochet hook to his bedroom.

Consequences

- Staff do not know that he is experiencing increased difficulties with his mental health and therefore cannot increase support.
- Staff decide he is not ready to be transferred to a low secure service and this is postponed.
- He remains at the medium secure service.

Key learning

- Consolidated learning that people cannot be trusted and they will try to abandon and reject you.
- Strengthened sense of not belonging and that having a cochlear implant means you are a misfit, neither hearing nor deaf and it is difficult to belong to either group.

Discussion of Aiden's MSFAs. There was a theme of grandiosity that had developed throughout his life, specifically in relation to inventions and having superior knowledge to others. This could be understood to have been shaped through his experiences of being involuntarily grouped with other deaf individuals who he perceived as having a lower intelligence or communication proficiency than him. His delusions of grandeur therefore served to protect his self-concept and disconfirm worries of being stupid himself due to a pairing he had made of deafness with stupidity and the associated conflict related to his belonging to either the hearing or d/Deaf groups. His paranoia and sense of persecution appear to have been shaped by experiences of disadvantage, physical abuse and being raped. His experience of being fitted with a cochlear implant, the rejection he experienced from the Deaf community and his perception of not being supported with his device appear to have

been important in the shaping of his paranoia and delusional beliefs specifically about his cochlear implant and society being against him.

Early experiences. His experiences of being singled out by his father for physical abuse is hypothesised to have developed a sense of being targeted and vulnerable which was strengthened when he was sexually abused and when he was bullied by hearing students about his deafness. He blamed his deafness for being targeted; bullies called him "deaf lugs" and he believed that his father did not love him because he was deaf. His perception of the other deaf children at the school as being "a bit thick" appeared to influence the development of a relational frame where he paired deafness with stupidity and a conflict about his identity related to deafness and whether he belonged with d/Deaf or hearing groups. Being with d/Deaf friends provided him with positive social interaction and a sense of acceptance but they did not understand his humour which had become a key part of his identity and role. Hearing people understood his humour providing him with a sense of acceptance and a role for the first time, his use of humour and telling jokes could therefore be understood to be positively reinforced by hearing persons. However, attempts to belong to the hearing group were also punished by bullying, specifically related to his deafness, which increased his sense of difference. His interest in science appears to have been negatively reinforced through the removal of the perceived threat of being bullied and disconfirmation of his worries of being perceived as a stupid deaf person.

Receiving a cochlear implant. His conflict related to whether he belonged to the d/Deaf or hearing groups appeared to increase due to his cochlear implant being punished by the Deaf community. The consequence of this is that he withdrew from the Deaf community because he felt rejected by them. However, because of the anger he felt towards the hospital that fitted him with the device and his disappointment in the effectiveness of the cochlear implant, he decided that he did not want it and he stopped activities that intended to train his hearing to the device meaning that he could not fully access and engage in the hearing community.

Attempts to be independent. His conflict was hypothesised to have been further reinforced due to a sense of not belonging anywhere and being a 'misfit' and he developed an increased sense of being socially disadvantaged.

Prodromal. The sexual assault was seen to reinforce his sense of being vulnerable, powerless and "preyed upon" that was developed during his early learning history. He also

developed a sense of paranoia about being followed and targeted by gay men, the development of this paranoid belief was therefore shaped by his experience of sexual abuse (childhood) and being raped. He also develops a sense of paranoia about being recognised as "the deaf boy" after he returned to live in the community where he had grown up and gone to school.

Early onset of psychosis. His delusions about his cochlear implant are hypothesised to have been shaped by his sense of paranoia and disadvantage related to his cochlear implant making him identifiable as a deaf man and preventing him from finding employment. His feelings of being unsupported, persecuted and abandoned appeared to be reinforced when he was asked to leave the audiology department and this influenced the development of beliefs of persecution from society, he believed that he was being disadvantaged and discriminated against by hearing society.

His learned helplessness is hypothesised to have developed when his first attempt to seek help was unsuccessful, he felt unsupported and that it was not worth asking for help as it would not be provided. Help seeking behaviour is therefore thought to have decreased due to the perceived rejection from the audiology department (punishment). He changed his strategy to retaliate against those who he believed had wronged him, this led to his arrest and admission to a psychiatric service. Although this would be expected to decrease the behaviour through positive punishment, his arrest also met his goals of removing him from his environment and he believed he had 'made a statement' about his anger towards the audiology department. Therefore his behaviour of making bombs was seen to be positively reinforced.

Admission to psychiatric services. His paranoid beliefs about being targeted by "homosexuals" appeared to be reinforced when a patient signed sexual comments to him.

Being immersed in a d/Deaf environment for the first time in years appeared to reinstate the pairing he had made of deafness and stupidity in his earlier learning history. This was because he viewed the other patients to have a lower level of signing proficiency than he did. It is possible that this was the case due to many Deaf individuals having experienced language deprivation and growing up in a non-signing family environment whereas his Mother and siblings could sign.

His interest in science, inventions and unusual topics increased his sense of difference to the other patients as they could not understand or talk about these areas. This behaviour appeared to be positively reinforced as he did not want to be associated as being the same as the patients he believed to be stupid and he interpreted his isolation from them as being special (reinforcing his grandiosity). These behaviours were also hypothesised to have been reinforced through negative reinforcement because the other patients who he felt threatened by stopped interacting with him, therefore removing this threat.

His diagnosis and the medical model bypassed the need to describe and understand his hallucinations and their content, he therefore continued to lack a framework to understand and communicate his experiences.

Decisions to transfer. His sense of injustice/ disadvantage related to being deaf is hypothesised to have been positively reinforced when he was transferred somewhere that he did not want to go to due to the lack of Deaf psychiatric services. His paranoia about being discriminated against also increased due to an increased sense of vulnerability when he went on community leave. The behaviour of secreting items considered to be potential weapons was reinstated when a transfer to low secure was discussed, this behaviour appeared to be negatively reinforced His secretion of potential weapons is punished through the removal of his positive activities and this behaviour gradually decreases.

Missing information. Although Aiden was able to give a clearer and more coherent account of his life history and experiences of hallucinations and delusion, it was again not possible to access the content of his voice hallucinations, other than them being embarrassing.

Difficulties encountered. Incongruences observed at times in the interview process have also been reported by staff members in his records who state that at times he can jump from one topic to another with no apparent link.

3.2: Across-Case Analysis: Extended Thematic Analysis

Seven key themes were identified through the thematic analysis. The following section presents an extended discussion of the themes, providing a more detailed description that could not be discussed in the journal paper. It is important to note that due to the multiple and varying data sources used in the analysis, direct participant quotes have not always been available.

"I am deaf that's just the way it is". This theme consisted of two subthemes; learned helplessness and powerlessness. Feelings of powerlessness experienced by participants across their learning histories related to actual and perceived limited control in their lives because of their deafness. Participants also felt powerless because of the control they considered to be held by others who had the power to make decisions about their lives (e.g. attending a residential deaf school or being fitted with a cochlear implant) and grant or deny opportunities and support. Aiden directly commented on his perception that he had "not had the opportunities to do the same things as hearing", a sentiment reflected by the other participants and it appeared that their perceived limited control and power influenced the development of learned helplessness, particularly in relation to self-enforced isolation and passivity. Participants appeared to have become resigned to their expectations of being excluded from family life, for example Ben reported "I was deaf… they did not explain and I did not ask". All participants believed that they would not be supported leading to a sense of social defeat that "I am deaf that's just the way it is" and that they had a limited ability to change their circumstances.

Caught between two worlds. This theme comprised of four subthemes; rejection, being a "misfit", identity conflict, and a sense of belonging in the Deaf community. This theme reflects the participants' conflict about where they belong in their family, hearing and d/Deaf groups, due to a sense of being a "misfit" and an outsider. Participants experienced difficulties in being able to fully integrate themselves into their hearing families and peer groups due to communication barriers. However, all participants also experienced difficulties in d/Deaf groups at different points in their developmental history. Identified reasons for participants difficulties reported with deaf peers related to how deafness had been constructed in their environment (e.g. signing being used for children in the remedial class) and deaf peers being of a different ability (physically or linguistically). These experiences with other deaf peers appeared to influence the development of an association of deafness with inferiority (i.e. being stupid, weak or disabled).

Rejection experienced from others and their own rejection/ acceptance of their deafness and the Deaf community was a key theme in participants experiences of belonging (or not belonging) to both the hearing and deaf communities. All participants experienced rejection from hearing communities in some way (e.g. being bullied or refused employment), and felt that they had been "treated differently by deaf than hearing" (Michael) people in their lives. In addition participants were seen to reject the Deaf community related to the negative

associations that they had made related to deafness. Furthermore, Aiden reported feeling rejected by the Deaf community after he had a cochlear implant which influenced his decision to stop engaging with the Deaf community. Despite their experiences varying, rejection was a common factor that influenced their sense of being caught between the majority hearing community to which their family belonged and the Deaf community which left participants feeling that they belonged to neither group for much of their life. However, a transition from rejection to acceptance of their deafness following experiences of Deaf clubs and Deaf psychiatric services facilitated a sense of belonging to the Deaf community. The sense of "deaf people accepting in Deaf community" (Michael) influenced the development of a Deaf identity for Ben and Michael.

"Society isn't treating me right". This theme consisted of the subthemes; Deaf versus hearing, discriminated, disadvantaged, injustice, inequality/ inferiority, and lack of support. This theme concerned the varying levels of discrimination and being disadvantaged reported by all participants; from difficulties in accessing college courses, "no interpreters" or interpreters "kept forgetting" (Ben) to support them in the workplace and having to go to residential schools; to direct acts of discrimination (e.g. Ben was told by one prospective employer that he would not be employed because he was deaf).

Important issues identified within this theme included a sense of being perceived as inferior and the inequality and sense of injustice that they experienced as a result of this. These experiences created a demarcation between being d/Deaf versus being hearing, importantly, this theme went beyond experiences at an individual level to experiences of being disadvantaged at an organisational level with regards to barriers in accessing equal services to their hearing peers.

Victimisation. This theme comprised of the subthemes; abuse, bullied, victimhood, targeted, vulnerable and suspicion, and concerns experiences of being bullied and abused, and the sense of vulnerability that participants developed in relation to these experiences. The theme victimisation went beyond the experiences of abuse and trauma; it captured the participants' relationship between these experiences and being deaf. For example, Michael reported that he believed others perceived him as "weak" because he is deaf and therefore an "easy target". This was a belief shared by the others and appeared to lead to the attribution of blame to their deafness for their experiences of abuse, for example, Aiden believed that his

father targeted him for physical abuse because he was deaf and did not accept or love him because of this.

This theme also captured the development of suspicion towards others related to the experiences of being bullied and abused that appeared to shape the participants paranoid and persecutory delusions.

Language factors. This theme concerns a number of factors that arose during the analysis and consists of the subthemes; shattered expectations, confusion, communication barriers, lack or access and imposed expectations. Communication barriers due to; a delay in learning sign language (participants reported they did not learn sign language until they started attending school or Deaf club), family members never learning BSL, and using a different language to the majority of society, appeared to impact on a number of areas. In addition to the impact on their sense of belonging as outlined previously, communication barriers also impacted on the participants' ability to access knowledge important for the development of their sense of self and wellbeing. For example, Michael was not able to access information about his family background;

"didn't have a clue really about family culture heritage…. No knowledge because nobody to communicate, all family hearing.. deaf club gave culture and community had missed out on" (Michael).

The impact of the communication barriers between Michael and his family can be viewed to have influenced his later immersion into the Deaf community due to a desire to establish a sense of cultural belonging and identity that he felt that he had missed out on. Other examples reported by participants included their lack of awareness of services/ support available to them, for example not knowing that they could go to the GP for stress or non-physical illnesses.

This theme also captured the expectations that participants felt had been imposed on them about how they should communicate/ interact with hearing persons, the impact of communication barriers on participants abilities to learn about their thoughts and emotions and the thoughts and emotions of others and their shattered expectations about how they anticipated they would be able to cope in the adult hearing world. Ben and Michael, who had been in deaf signing environments at school appeared to have been ill-prepared for their transition into predominantly hearing communities when they left school. Their expectations

of the future they could have were shattered when opportunities they had anticipated were not made available to them (e.g. college course and skilled employment opportunities). Despite attending a mainstream school, Aiden also experienced this process when he found himself socially isolated and unable to cope as he had anticipated when he left school.

Service issues. The theme service issues reflects the participants' experiences of barriers to services from childhood through to the present. Although these issues have been commented on within other themes, the prevalence and significance of this issue across the data set was considered such to warrant a theme within its own right. This theme also identified a possible impact of the medical model of the forensic psychiatric services on the continued limited ability to develop a framework for the participants to understand and communicate their internal experiences including their experiences of hallucinations and delusions. The focus of the service provision for all participants appeared to be on their offence behaviours and the presence rather than content of their hallucinations and delusions. Furthermore, psychological provision consisted of a considerable amount of group based interventions for all participants, for example, during Aiden's eight years in a high secure psychiatric service he received 51 months of individual interventions and 44 months of group interventions with a very basic psychoeducation agenda. With a high quantity of psychological intervention being group based, exploration of the individual meaning of experiences of hallucinations and delusions seemed to be limited for participants.

Common factors. The final theme, common factors, reflects significant issues and events that were shared across the participants. These factors influenced participants' experiences of distress and their abilities to cope but were identified as being non-specific to deafness. The common factors reflect experiences that are shared with the hearing population, including psychosocial factors that have been identified in the literatures as being associated with psychosis.

Discussion

This section comprises of a discussion of the across-case analysis and a review of the second research question; as noted in the journal paper, the study identified the topography and a limited depiction of the themes of hallucinations and delusions experienced by the participants. Consequently a discussion of the first research question will not be repeated in this extended discussion. A discussion of the limited information regarding the content of hallucinations that was available for the participants in the current study and hypotheses for

this finding is also provided. Finally a comment on the clinical implications of the current study and areas for future research is presented.

4.1: Discussion of the Across Case Analysis

Learned helplessness. The finding of self-enforced social isolation and/ or passivity for all the participants based on their learning histories of setbacks, humiliation and no changed occurring despite their effort can be seen to lead to the development of learned helplessness (Seligman, 1972). The perception of voices as powerful has been found to influence a sense of helplessness and powerlessness (Gilbert, 1992), as found with the participants in the study. Learned helplessness has been described as a coping behaviour to avoid threat, particularly when events may be out of the individual's control or they do not have access to alternative coping strategies (Fogle, 1978). In this regard, learned helplessness may be the most adaptive response available, particularly for Deaf individuals who have limited access to services and resources which may provide alternative coping strategies and also have reduced opportunities which may leave them feeling powerless in a society that is structured for hearing individuals. This notion of learned helplessness being adaptive is supported in the literature, Matthews et al. (2015) referred to the role of families disempowering deaf individuals in the development of learned helplessness. In the study by Moore (2016), the process of complaining is provided as an example where passivity and learned helplessness may be viewed as an adaptive strategy for many Deaf individuals who do not attempt to complain due to the procedures being mainly constructed around hearing and oral communication.

Deaf/ hearing cultural conflict. One thing that was identified in the across- case analysis was that participants had made a negative pairing of deafness. For Ben and Aiden, deafness was within the same relational frame as stupidity, whilst Michael had paired deafness with disability and weakness. These negative pairings were present during periods of their lives when they appeared to have rejected deafness, Deaf culture and Deaf people. During this period they also experienced distress in relation to their deafness. It appeared that all participants developed a cultural conflict about their Deaf/ hearing identities and whether they belonged to either the hearing or d/Deaf groups and at some point rejected deafness, the Deaf community and other Deaf people.

The transition to acceptance of deafness and development of a Deaf identity for Ben and Michael was associated with the negative relational frame, whereby deafness was paired

with stupidity or disability, being weakened. There was also a reduction in the distress they experienced in relation to their deafness. Following this change in Ben's perception of deafness he experienced a reduction in his experiences of hallucinations. For both Ben and Michael, involvement with other Deaf individuals in a culturally Deaf environment enabled a sense of acceptance and escape from feelings of isolation due to communication barriers. These findings reflect themes found by researchers who have investigated identities of d/Deaf individuals (Flaherty, 2015; Hardy, 2010).

4.2: How have the themes, topography and content of hallucinations and delusions been shaped by the individual's developmental history and the experiences which are unique to being Deaf and Deaf culture?

The study identified evidence that the content and themes of participants delusions and hallucinations appeared to have been shaped by their developmental history (See journal version for a discussion on topography). The study also identified that the participants experiences of delusions appeared to have been shaped specifically by experiences that were unique to being d/Deaf, however, there was no evidence that hallucinations had been shaped by unique experiences of being d/Deaf or Deaf culture.

From a psychological perspective the themes and content of an individual's hallucinations would be hypothesised to reflect the individual's wider psychological vulnerability and contain personal meaning (Chadwick et al., 1996). The participants' experiences of hallucinations being "derogatory", "negative" and "embarrassing and personal" indicate that these were reflective of their developmental history and life experiences of being humiliated, discriminated against and targeted may have shaped the voices content through positive and negative reinforcement contingencies. Their experiences of hallucinations were therefore not found to have been shaped by unique experiences of being d/Deaf, instead hallucinations could be understood within the context of social disadvantage and victimisation, common psychosocial stressors that have been associated with psychosis. An individual's culture has been found to play a role in the personal meaning of hallucinations and delusions, with the content reflecting the individual's culture (e.g. Kent & Wahass, 1996); Stompe et al., 2006; Yamada et al., 2006). However, this was not found to be the case for the individuals included in the current study with regards to Deaf culture as there was nothing unique about their experiences related to deafness that could not be understood within these contexts (in relation to their experiences of hallucinations). For

example, being perceived as inferior/ different and victimised due to being deaf could fit within a model of social defeat due to being in a minority group, or disability; victimisation, social vulnerability and disadvantage have also been reported as experiences faced by individuals with intellectual disabilities (Ali, King, Strydom, & Hassiortis, 2016; Fisher, Baird, Currey, & Hodapp, 2016). Whilst the author does not ascribe to the medical model of deafness as a disability, these examples are presented to demonstrate that the participants' perceptions of themselves and how others treat them in relation to their deafness are also shared by individuals in other minority groups.

Delusions, however, were found to be shaped not only by the individuals' general life experiences but also by specific experiences related to being deaf. The delusional beliefs that Aiden held concerning the government conspiring to control him through his cochlear implant provided the greatest demonstration of this connection. His experience of rejection from the Deaf community after he was fitted with the device, perception of being recognised as a deaf person because of the scar, attribution of blame towards the device for not being able to find employment and perception of not being supported shaped his sense of paranoia and persecutory beliefs of being discriminated and disadvantaged by society. The delusions of grandeur held by Michael and Aiden concerning special abilities appeared to be linked to their fight against being perceived as stupid or weak related to the negative pairings that they had made in regards to deafness. This theme of delusional belief reflects Glickman's report that delusions of grandeur concerning being special are common delusional beliefs among d/Deaf persons in Deaf psychiatric units (Glickman, 2009).

4.3: Lack of Content Specificity

As outlined in the journal paper, arguably, one of the most important findings of the research was that there was a distinct lack of information concerning the content of the participant's hallucinations. A question was raised throughout the data collection and analysis process as to whether deafness and deaf culture does not influence content specifically or whether this content is missing. This was raised due to the difficulties encountered during the interview and file review process with regards to; limited detailed information provided by the participants, a lack of description of the content and themes of the hallucinations from participants and professionals involved in their care (as documented in the file review and the professional interview) and inconsistencies in their time frame. The file review process also highlighted that previous psychological input had focussed on offence behaviours and it is

therefore possible that the content of hallucinations had not been explored in detail. This provided difficulty in establishing the learning history and reinforcement of hallucinations with regards to how events may have impacted on the increase or decrease of the content or individual's conviction of the hallucinations.

Storytelling and time sequencing. During the interview process difficulties were encountered with regards to limited detailed information provided by the participants, incongruences in all three participants' narratives and particular difficulties observed for Ben and Michael in sequencing their narratives with regards to inconsistencies in their time frame. It appeared that the participants were not coherent storytellers of their own life narratives.

It had been anticipated that there may be difficulties with regards to the coherence of narratives based on the literature available of poor insight about historic and current episodes of psychosis and the ability to organise narratives for hearing individuals (Amador, Strauss, Yale, Flaum, & Gorman, 1993; Hoffman, 1986). However, the degree to which this was present for the participants appeared to be significant in preventing access to content which has been possible to access in research with hearing persons. As evidenced from the literature presented in the introduction, despite these challenges when conducting research with hearing participants it has still been possible to access and explore the content of both hallucinations and delusions and the personal meaning of these experiences related to the individual's life history and local culture (e.g. Stompe et al., 2006; Yamada et al., 2006). However, the content of these experiences and their cultural/ personal meaning was missing for all three participants in the current study, raising the question of whether deafness impacted their ability to access and communicate their internal experiences.

Research investigating storytelling abilities have found that deaf and hard of hearing children have considerable difficulties in producing and organising narratives (Pakulksi & Kaderavek, 2001; Walker, Munro, & Rickards, 1998). The linguistic ability to express temporal perception is a skill that is essential for producing a well-formed narrative (Labov & Waletsky, 1967). Time is an essential concept that we use to relate our lives to, however, deaf and hard of hearing children have been found to have difficulties in time perception (Kaiser-Grodecka & Cieszynska, 1991; Marschark, Lang & Albertini, 2002; Senior, 1989). Eden (2008) found that children aged 6-10 years had difficulties in arranging pictures in temporal order. Kaiser-Grodecka and Cieszynska (1991) suggested that for children with hearing loss, time is always connected to the present, limiting their ability to understand historical time

accurately. These researchers investigated time perception in a sample of deaf Polish children aged 12-15 years and found that all the children had difficulties in correctly using simple time concepts and in their abilities to place concrete facts in the past and future even when a graphic scale was used. In addition to difficulties in understanding and using time concepts, the researchers found that the participants had difficulties remembering facts from their own past. Eden (2008) has suggested that the difficulties that deaf individuals may have in remembering their own life histories may be due to linguistic barriers as they have reduced opportunities to hear about past events from family members.

The finding that both time perception and organising a coherent narrative are common difficulties for deaf children indicate that the difficulties encountered in the interview process may not have been due to the participants' current mental state or avoidance, identifying that there may be specific barriers to accessing content for d/Deaf adults diagnosed with a psychosis. However, the research investigating time perception and storytelling abilities for deaf individuals has taken a more educational perspective and has therefore only used samples of children. It is therefore unknown how these abilities may develop as deaf individuals enter into adulthood and acquire more life experiences and language.

Framework for internal experiences. One finding across the cases was the impact of communication barriers and the diagnostic/ offender system on the development of a framework to understand and communicate internal experiences.

It is possible that the difficulties in providing context and being able to describe internal experiences is a result of language deprivation and communication barriers during childhood. Skinner (1957) reported that without verbal distinctions being provided from others in an individual's environment, it can be difficult to develop a framework for understanding and describing inner events. Skinner (1957) proposed that it is through the feedback of those in an individual's environment that an individual learns to communicate inner experiences such as emotions due to learning about these through the response of others from their observable behaviours. For example, if a child cries adults will respond to this observable behaviour, deriving that they are sad in some way and communicate this to the child, who then learns a verbal response to their inner experiences and will eventually be able to communicate "I am sad" to others. This feedback from others outlines the importance of communication for an individual to learn about their thoughts and emotions, develop a framework for understanding these experiences and then communicate their internal

experiences to others. It is therefore possible that Michael and Ben did not develop a framework for understanding and communicating their inner experiences due to the language deprivation that Ben and Michael experienced until they attended school and their continued experiences of living in a non-signing environment when at home.

However, Aiden was also unable to provide information related to the content of his hallucinations, indicating that this finding was not fully dependent on the individual's communication ability and language history. This highlighted that there may be further factors impacting on the participants' ability to understand and communicate their experiences of hallucinations and delusions. It was hypothesised that the medical model of the forensic psychiatric system may therefore also have played a role in the participants' difficulties in communicating these experiences. The medical model focuses on the presence/ absence of symptoms within a diagnostic category and therefore reduces the need to explore the individual meaning and content of the hallucinations and delusions. By reviewing the participants' records it was apparent that the focus of psychiatric and psychological input was on their offence behaviours and they received a considerable amount of psychological interventions that were group based, restricting the opportunities to explore the individual content and personal meaning of their hallucinations and delusions.

4.4: Offence Behaviours

All participants included in the study had an offence history. However, offence behaviours have not been discussed throughout the analysis and discussion unless there was considered to be a direct relationship between the hallucinations and/ delusions held by the individual as these were the phenomena of interest in the current study. Offence behaviours appeared to be associated feelings of vulnerability, abandonment, anger and loneliness in addition to substance use reflecting the known schema modes associated with offence behaviours and institutional transgressions (Kleuen de-Vos et al., 2016).

4.5: Limitations

A key limitation of the study is that participant feedback about the results has not been included, particularly given the historic exclusion of Deaf individuals from research and limited representation of their voice. However, despite all participants consenting to a report of the findings being provided to their care team, Ben and Michael declined a copy for themselves. Although Aiden indicated an interest in reading his report, time constraints have

meant that there has not been time to wait for any responses from Aiden prior to the submission of this thesis. It is hoped that if Aiden wishes to respond to his report that this will be represented in the manuscript that will be submitted for publication.

The potential limitations of the use of an interpreter were outlined in the methodology section. Good practice guidelines (Association of Sign Language Interpreters, 2017) and methodological recommendations for qualitative research with interpreters were followed to strengthen the trustworthiness of the data, including establishing the translator's qualifications/ prior experience, confidentiality and their role within the process (Squires, 2009). In practice it was found that the interpreter occasionally encountered difficulties in understanding what the client had meant when there was no context provided. However, the interpreter translated all transactions regardless and made it clear to me when there were contextual difficulties. Whilst this increased the reliability of translations, increased time was needed to clarify correct understandings by all parties. Overall the interpreter was good at clarifying questions to ensure they had understood what was meant and could make an accurate translation.

One limitation to the current study was that triangulation of the translation process to gain consensus of the translation by a second interpreter was not possible. It had initially been intended that a random sample of a selection of the recordings would be reviewed by a practitioner who was fluent in BSL to establish an agreement on the translation during the interviews. However, this was a very time consuming process and I was unable to find a clinician who was willing to undertake this task and I did not have funding for a second interpreter.

Although best efforts were taken to ensure that the interpreter provided accurate translations clarifying the meanings of questions I was disappointed that not being able to triangulate may raise questions about the validity and credibility of the data. However, cross-cultural research does have an evidence base, including the use of interpreters and the current study followed the guidelines that have been outlined in the extant literature where possible and feasible (Squires, 2009).

4.6: Implications for Clinical Practice and Future Research

The difficulties encountered in the data collection process with regards to insight, time sequencing and constructing narratives identifies an important implication for clinical

practice with d/Deaf persons, that professionals are unable to identify the personal meaning of these experiences for the individual. Chadwick et al. (1996) suggest that from a psychological perspective, the content of hallucinations and delusions are significant as they represent a personal meaning to the individual which relate to their wider psychological vulnerability. I am unsure of the knowledge base that clinicians have of this phenomenon, whether it was my own naivety as an outsider to the area of Deaf psychology, but I believe that there is a need for research investigating the area of narratives and time perception with d/Deaf adults in psychological therapy. Although guidelines have been established for culturally affirmative practice and adapted cognitive behavioural therapy with clients who have language dysfluency (Glickman, 1996; 2008), these guidelines focus on issues including; how to work with interpreters, engage clients, adapting psychoeducation and skills training etc. Research exploring process related issues during the therapeutic process with this client group could outline recommendations to help clients to establish a collaborative narrative and communicate internal experiences (see journal paper for a full list of recommendations for future research).

Reflections

The reflection section outlines my pre-assumptions prior to the project and my reflections on key components of the project.

5.1: Apriori Assumptions

I began the study with limited expectations of what I would find, however, the assumptions I held were based on my experiences and background reading that had developed some common themes of unique experiences for deaf persons. My experience of learning sign language and exposure to the Deaf community meant that I had developed views in line with the cultural model of deafness. However, being a hearing researcher I was aware that this placed me at a juxtaposition, having an awareness of views I could never truly understand myself.

Based on what is known about hallucinations and delusions in the hearing population, that these experiences are shaped not only by the individual's context but also by the local culture (e.g. Kim et al., 1993; Mitchell & Vierkant, 1989), I had expected to find that both individual life experiences (including those unique to being d/Deaf) and the culture of the Deaf community would also influence hallucinations and delusions. Furthermore, I had

expectations based on what is known about Deaf persons having; their own culture, community and distinct identity, differences in adaptive behaviour (e.g. Valentine & Skelton, 2007), and strong attitudes towards hearing society founded on their historical experiences of oppression (e.g. Kitson, Fernando & Douglas, 2000). Having reviewed the literature, I expected that these experiences and themes would influence the experiences of hallucinations and delusions and be present within the content of these experiences.

5.2: Ability to Fully Answer the Research Questions

Based on my prior assumptions about what I might expect to find, research demonstrating that it is possible to access content and the MSFA methodology being used previously with an individual who experienced psychosis, I anticipated that I would be able to fully answer my research questions. However, this was not found to be the case, whilst the first research question could be answered, the study was only able to answer the second research question relating to delusions. The ability to determine how the themes and content of hallucinations had been shaped by the unique experiences of being d/Deaf and Deaf culture was not possible in the current study.

I believe that the difficulty in fully answering the second research question was not a result of the methodology as the difficulties encountered in accessing the content were evidenced within the participants' records by other professionals. On reflection I believe that due to the difficulties experienced the method chosen was a benefit, without access to the file reviews and data from the professional interview I believe that the ability to answer the research questions would have been further limited.

Despite the difficulties in being able to fully answer the research questions I am confident that the results reflect the participants' experiences and are personally meaningful for the participants. The two one hour long interviews with each participant provided the opportunity to explore what issues that participants brought into the process, what was meaningful to them and for participants to give their own accounts. In that regard, I would argue that the findings are reflective of the participants' reality and triangulation of additional sources increased the ability to establish the validity of results. I therefore believe that the study meets the pragmatic truth criterion of functional contextualism that underlies this study, in that it provides successful working and functional utility of the results.

5.3: Process of Ethical Approval and unexpected delays

I found the process of obtaining ethical approval a long and stressful process. I encountered a number of delays at different points in this process; in part this was due to recruiting from a private service and having to obtain additional evidence of their willingness to participate in the study prior to final university ethical approval. I also found having to obtain both university and NHS ethical approval a long process of going back and forth between the committees to clarify approval, again this was more related to the university committee requiring evidence of approval. At the time that I applied for ethical approval there had been a change to the process and it seemed that a number of individuals involved in the process were unclear of the new process.

I experienced further delays later in the process due to the university requiring evidence from the interpreters that I could not obtain prior to booking the interpreter. However I was not permitted to book the interpreter without the university approval and I felt that I was caught in a catch 22 situation whereby both parties were resistant to move forward without the other conceding.

A final delay was encountered when I became aware that one identified participant intermittently wore a hearing aid, a previous exclusion criterion. To include the participant in the study I therefore needed to submit a substantial amendment through IRAS and await approval before continuing with the data collection for this participant. This problem occurred late into the research study and I was therefore worried that I would have to submit my thesis with only two participants if the amendment was not approved. Fortunately the amendment was approved however, this was after a long delay and I had therefore missed the intended submission deadline in an attempt to have a sample size that was supported by the literature. I therefore felt under pressure to complete the data collection and write up the findings in a short period of time to prevent delays to completing the course and becoming qualified.

On reflection I think an underlying theme that influenced my feelings of stress and anxiety during the process of ethical approval and the delays I encountered was that the situation was out of my control. At periods when I was waiting on third parties I felt that the

control was fully in their hands and at times there was nothing I could do to progress with the study until the issue had been resolved.

5.4: First Experience of a Medium Secure Setting

Although I had previous experience of working with clients who were on a 37/41 section during my adult mental health placement in an inpatient unit, this was within a rehabilitation setting. I first realised how new the medium secure setting felt to me when entering the building due to the heightened security procedures. It was only at this point that I noticed a sense of curiosity and mild apprehension about the clients and I had no knowledge of their offence history and had not given this any consideration before this point. On reflection I think that this was influenced by processes that had to be put in place due to an individual's care plan that females were not allowed to lone work. This meant that in addition to myself and the interpreter, two members of the care team also needed to be present. In addition to this a client referred to previous offences during an initial meeting to get informed consent and this made me aware that I would be working with individual's who had committed serious crimes for the first time.

When reflecting on how I had felt during my initial meetings with prospective participants, I recognised that my apprehension related more to my own competencies and not bias or prejudice. By this I mean that I was not worried about working with this client group because of any prejudices I may have had about their history, rather I was very aware that I had not given much consideration on how I may need to adjust my usual approaches in line with unit procedures.

An additional complication to this process was that my sample consisted of individuals who were on a secure unit and there were therefore additional restrictions by the service regarding the use of recording equipment. The consequence of these restrictions was a further delay to the start of the project placing further pressure on myself to complete the data collection process in a concise time frame.

5.5: Use of an Interpreter

The process of using an interpreter had a greater impact on the interview process than I had anticipated. I found that I was not able to gather the quantity or quality of information that I had hoped for. The process of having to clarify that translations had been interpreted accurately either by the participant or myself through summaries and clarifying that the

participant had understood the questions correctly through rephrasing lengthened the questioning during the interview meaning that the process of gathering responses for each question took longer than expected. At times I therefore feared that I would not be able to complete the interview schedule in the allocated timeframe and produced a dilemma whereby I felt pressured to choose between being able to gather responses to each of my outlined questions or to explore arising matters in further depth in order to gather quality data.

5.6: Responses to the Data

I entered the interview process being unaware of any difficulties I may encounter with regards to the participants being able to provide an accurate account of their lives. During the interviews I questioned whether it was due to the participants' avoidance, current mental state or perhaps an error in how I had phrased the interview questions. This was in part because of short and concrete answers that participants were providing due to not understanding hypothetical questions. As a result I found myself being pushed into giving more closed questions rather than open questions to establish clarity of what I was asking. After raising these concerns in supervision I researched time perception abilities in the Deaf population and found the research cited in the discussion section. Reviewing the research reduced the criticism I had with regards to the difficulties I encountered being a result of my incompetence. However, I then experienced feelings of frustration due to not being previously aware of these issues. I had been aware of difficulties I could encounter with regards to establishing a coherent narrative related to psychosis and had been prepared for this. I had not known of additional difficulties with regards to the impact of deafness and I felt that this was a result of research in the areas of time perception, understanding abstract concepts and sequencing narratives being conducted with children from an educational perspective and no presence of the impact of these findings in the psychological literature.

During the file review process I found myself feeling overwhelmed by the sheer volume of information I had. Due to the participants being inpatients in secure psychiatric services there was a minimum of 13 years of records for each participant that I had to review. Having to wade through the mass of data left me feeling stressed due to the pressure I felt related to time constraints. I also found I was becoming increasingly frustrated during this process due to the limited amount of information pertinent to my study that was documented. My feelings of frustration were in part due to the stress I felt that I was not able to answer my research question because of the limited information recorded about hallucinations or

delusions. I also found myself becoming frustrated about the fact that professionals appeared to have focussed on the participants' offence related behaviours at the expense of supporting them to understand their distressing experiences of hallucinations and delusions.

5.7: Researcher Positioning

When conducting qualitative research it is suggested that a common ethical dilemma encountered is related to the role of the researcher with regards to both their personal and professional values and standards when engaging with participants (Laine, 2000). I encountered this dilemma predominantly in terms of my professional values.

Firstly I found that my developing knowledge of theoretical models throughout my training led me to reflect on whether I would have followed a different perspective had I developed the project later in my training. As I progressed throughout the course I found that I had become aligned with more systemic models and clinically I would typically not work from a behavioural perspective. However, whilst reflecting on the impact of my knowledge and theoretical allegiance I acknowledged that the behavioural theoretical underpinnings of MSFA provided a huge benefit in structuring the analysis and addressing my research aims.

I also became aware that my position clinically with regards to the medical model of psychosis meant that I did not share the view of the participants in the study. Whilst I did not think that this lead to any researcher bias I became aware that it might have influenced the frustration I felt towards the services for not supporting the individuals to develop a framework for understanding their experiences of hallucinations and delusions.

Audit Trail

6.1: Documenting the Process

Extracts of research supervision logs are provided with the intention to document some of the methodological decisions throughout the process and the process of analysis (please see Appendix 14 for the documented ethical approval). Additional evidence for the analysis process is demonstrated through the file review documenting the information gathered from participants' records (Appendix 15a-15c).

Study design. I used supervision throughout November 2015- January 2016 to refine my research question and shape the study design. Records of my research supervision at this time document the influence of the research panel on this process as I comment that "I was

pulled up on psychosis being too broad and what exactly would my sample be, I thought this was referring to a specific disorder i.e. schizophrenia". Feedback from supervisors helped me to decide to focus on a specific domain of psychosis, remind me that my interest had originally been in "ideas of reference, delusions, the content and meaning of hallucinations" and that the label of psychosis was therefore most relevant to the inclusion/ exclusion criteria. This process can therefore be seen to have influenced my final framing on my research aims on the specific experiences of hallucinations and delusions and is demonstrated in an extract from an email to my research supervisor 20.01.2016 below:

> *"Following the critiques from the research drop in at the end of last term and some feedback I have had from Psychologists in deaf services I was considering widening the project from conceptualisations of hallucinations, I'm now considering whether it would be better to do a project on 'how does an individual's deafness relate to the development and experiences of their psychosis'. I think this will perhaps have greater implications and also if I were to use MSFA with three participants it would mean that I wouldn't need to transcribe the interviews as I would have with the hallucinations project, increasing the time I could use the interpreter for with each participant."*

Methodological decisions for the sample. Evidence of considerations for the sample with regards to research with Deaf individuals is provided from the record of email contact with a professional who works with the population dated 13.11.2015- 02.06.2016. The supervision log outlines that there were multiple discussions after the research aims had been established "to ensure methodological concerns regarding working with a Deaf sample were appropriately addressed".

Use of an interpreter. With regards to issues related to the use of an interpreter following feedback from my protocol submission during supervision on 11.05.2016 it was agreed that I would "review literature on using an interpreter in research to support the argument for translation in the interview process".

Systematic literature review design. The structure and inclusion criteria for the systematic literature review was defined during numerous supervision meetings between 24.06.2016 and 03.08.2016. For example, due to difficulties retrieving papers was discussed however, "it was decided that there would be sufficient resources without the

use of grey literature and due to the poor methodology of the available published literature the use of grey literature may in fact weaken the analysis".

Ethics. Supervision was used to discuss the process of submitting for ethics and "actions were identified with regards to an agreed timeline for completion and areas to consider for both university and NHS ethics submission" (supervision log dated 07.10.2016).

Analysis. Research supervision was used throughout the analysis process to prevent researcher bias and discuss arising issues. For example I questioned whether hallucinations and delusions should be treated as internal or external to the body and sought advice about how to treated these experiences in the MSFA to address my question that i) "if a voice is experienced as an external agent but inside the body can this still be classed as an antecedent?" and ii) "if I treat an event of experiencing voices as an antecedent, do I need to do this consistently for that participant?" (Documented in supervision emails dated 23.11.2017 and 28.11.2017).

The use of supervision to discuss the working analyses in order to prevent researcher bias and arising issues is also evidenced in the research supervision meeting held on 13.12.2017 "We discussed the issues encountered during the interview process including participants' difficulties to time sequence".

6.2: Self-Awareness of the Researcher

Throughout the research I kept a reflective diary recording my thoughts and assumptions from conception of the project. I recorded my initial responses following supervision and after each interview/ data collection session to facilitate reflexivity and transparency by documenting anything that might have influenced the process.

The reflective diary has been helpful in documenting my developing stance as a scientist practitioner and dilemmas that I faced throughout the process. My understanding and professional stance with regards to the theory underpinning the project has been a recurring theme as documented in the following extracts.

Establishing a study design. *"I'm having a theoretical dilemma! I had originally looked at using IPA but now my research question has changed this method no longer fits. MSFA seems to be an appropriate method for my new project aims but this is probably one of*

the theoretical models I'm least familiar with at the moment so I'm unsure. From what I've read it seems that a behavioural perspective would consider hallucinations and delusions to be functional and learned through experience and maintained by environmental contingencies. I think I have a lot more theory reading to do before I can commit to a method but it just goes over my head at times".

During the analysis. *"As helpful as I'm finding the behavioural assumptions that structure the MSFA in this project I've started to realise that behaviourism is probably a model that I will use rarely in my clinical practice."*

Thesis write up. *"Now I'm starting to realise what kind of a clinical practitioner I will be and the models I will draw on I'm feeling more and more conflicted about my choice of theory for my research. I need to keep reminding myself that this is why it is clinical-scientist practitioner and actually the science/ research component is different. After all as a researcher I should use the most appropriate model for the research aims I have developed."*

Another theme that was well documented in the reflective diary was my relationship to the Deaf community.

After establishing my study design. *"I'm really happy that I've been able to develop a project that I am actually interested in. I hope my sign language and knowledge of the Deaf community will be helpful."*

Following my first day of interviews. *"I'm suddenly feeling really out of touch with the Deaf community and so out of practice with my signing. It's interesting though that whilst I felt overwhelmed and lost in this signing environment the participants seemed to be surprised by and really appreciate my basic attempts to communicate with them using BSL".*

During the file reviews. *"Doing the file review part of this study has made me feel angry about the service provision for Deaf individuals. I feel like to a certain degree services have continued to reflect the negative experiences they encountered throughout their lives. It doesn't seem like they have had the same input as hearing individuals I have worked with, could this be because of the structure of secure services for offenders and not to do with deafness?"*

During the thesis write up. *"I'm feeling frustrated by the assumption that people keep making that I will want to work in Deaf services now that we're approaching job*

application season. I'm interested in Deaf culture but it's such a niche area I don't want to limit my career progression options. I think the frustration is partly because this does not seem to be the case for everyone, nobody assumes the people researching cancer want to work in physical health so why is deafness different? It's made me wonder whether I come across more passionate about Deaf culture, working with Deaf people and my project than I had thought".

"The silent child has just come out and it really reflects the accounts that my participants have provided of their childhood and anecdotal accounts of Deaf people I knew that influenced my interest in the study. I'm wondering to what degree I can include the anecdotal accounts in the background/ rationale because it is information from Deaf people that really informed my own understanding of Deaf culture/ experiences".

I have only presented two themes here; these themes were selected as they had the highest prevalence throughout my reflective diary. It is hoped that these extracts will have demonstrated that the researcher maintained a level of reflexivity and self-awareness throughout the project.

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Appendices

Appendix 1: Systematic Review Search Strategies

PsycARTICLES and MEDLINE search strategy

1. deaf
2. (hearing and disorder*)
3.(hearing and impairment*)
4. deafness
5. 1 OR 2 OR 3 OR 4
6. (cultural and identit*)
7. (deaf and identit*)
8. (bi-cultural and identit*)
9. (bicultural and identit*)
10. (hearing and identit*)
11. identity
12. (social and identit*)
13. (group and identit*)
14. self-concept
15. (identity and development)
16. (identity and formation)
17. self image
18. 6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12 OR 13 OR 14 OR 15 OR 16 OR 17
19. 5 AND 18
20. limit 19 to (Human and English language)

PsycINFO search strategy

1. deaf
2. hearing disorders
3.(hearing and impairment*)
4. deafness
5. 1 OR 2 OR 3 OR 4
6. (cultural and identit*)
7. (deaf and identit*)
8. (bi-cultural and identit*)

9. (bicultural and identit*)
10. (hearing and identit*)
11. identity
12. social identity
13. group identity
14. self-concept
15. (identity and development)
16. identity formation
17. self-image
18. 6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12 OR 13 OR 14 OR 15 OR 16 OR 17
19. 5 AND 18
20. limit 19 to (Human and English language)

CINAHL search strategy

1. deaf
2. Hearing Disorders
3. "hearing impairment*"
4. Deafness
5. 1 OR 2 OR 3 OR 4
6. "cultural identit*"
7. "deaf identit*"
8. "bi-cultural identit*"
9. "bicultural identit*"
10. "hearing identit*"
11. identity
12. "social identit*"
13. "group identit*"
14. self-concept
15. "identity development"
16. "identity formation"
17. self-image
18. 6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12 OR 13 OR 14 OR 15 OR 16 OR 17
19. 5 AND 18

ASSIA search strategy

deaf
OR deafness OR hearing disorder
OR hearing disorders OR hearing impairment
OR hearing impairments
AND cultural identit* OR deaf identit*
OR bicultural identit* OR bi-cultural identit*
OR hearing identit* OR social identit*
OR group identit* OR self-concept
OR self-image OR identity development
OR identity formation OR identity

Limit to English

Appendix 2: Overview of studies reviewed

Study	Author and date	Title	Sample size and demographics	Onset of deafness	Method	Summary of findings
1	Al-Makhamreh (2016)	Hearing the voices of young deaf people: Implications for social work practice in Jordan.	14 participants recruited from a school in Jordan. The sample consisted of deaf adolescents aged 15-18 (N=8: Males N=3; Females N=5) and 6 female caregivers.	Does not report however all deaf participants are adolescents and therefore onset was prior to adulthood.	Semi-structured interviews and a focus group	The findings suggest that the deaf individuals view themselves as a sub-cultural group but the family environment is exclusionary in socializing this group into an identity of disability.
2	Bat-Chava (2000)	Diversity of deaf identities.	Of a total sample of 56 individuals interviewed, Interview examples are provided for three individuals ascribing to one of three cultural identities. *	From birth (N=1), not reported but participants attended deaf schools indicating onset was prior to adulthood.	Semi-structured interviews	Participants were clustered into hearing, deaf or bicultural identities based on the four criterion variables: importance of signing, importance of speech, group identity, and attitudes toward deaf people. Deaf cultural identification was related to greater cultural orientation in the home and culturally deaf and bicultural individuals were found to have higher levels of self-esteem.
3	Fitzpatrick, Graham, Durieux-Smith, Angus, & Coyle (2007).	Parents' perspectives on the impact of the early diagnosis of childhood hearing loss.	21 primary caregivers of a deaf child (parents N= 20; grandparents N=1).	Congenital or early childhood.	Semi-structured interviews	The findings indicate that the age of diagnosis of hearing impairment had implications for bonding and communication with the child. It was also reported that early

						diagnosis had positive implications for the self-concept of the child as it allowed parents to accept their child's deafness as part of who they are.
4	Flaherty (2015).	What we can learn from hearing parents of deaf children.	18 primary caregivers of a deaf child (mothers N= 9 mothers; N=1 grandmother; N= 8 fathers).	Congenital.	Semi- structured interviews and a life-grid	Parents' ability to use sign language increased their integration into the deaf community and influenced their perception of the child's identity.
5	Foster & Kinuthia (2003).	Deaf Persons of Asian American, Hispanic American, and African American Backgrounds: A Study of Intra-individual Diversity and Identity.	33 students from the National Technical Institute for the Deaf (Black N=11; Hispanic N=11; Asian N=11).	Early childhood (N= 29); adolescence (N=5).	Semi-structured interviews	The findings suggest that feelings of alienation discomfort, and rejection were integral to identity development. Communication methods in the home environment influenced how individuals related to themselves and their multiple cultures, communication limitations restricted learning about their ethnic cultural heritage and many participants related more with their deaf culture.
6	Hardy (2010).	The development of a sense of identity in deaf adolescents in mainstream schools.	11 deaf adolescents aged 13-16 (females N= 6; males N=5).	Does not report however all participants are adolescents; therefore onset was	Semi- structured interviews	Communication difficulties, including those experienced in the home environment, were important factors in the individual's identification

				prior to adulthood.		with a deaf or hearing group.
7	Ohna (2004).	Deaf in my own way: Identity, learning and narratives.	2 deaf females aged 20 and 40.	Reports onset was in early childhood for 1 participant, it does not report onset for the second however she is reported to have grown up in a deaf family, and both parents are deaf indicating the deafness was genetic and likely to be congenital.	Unstructured interviews	The study reports the individual's identity development in four stages and how the way of relating to the self-influence the way the individual relates to deaf and hearing others. The influence of the individuals early and current family interactions are reported in this process.
8	Page (1993).	Ethnic identity in deaf Hispanics of New Mexico.	5 Deaf Hispanic individuals (females N=3; males N=2) aged 24-68.	Does not report, however, all participants attended a school for the deaf indicating onset was prior to adulthood.	Semi-structured interview	Participants reported a strong identification with the Deaf ethnic group and the family interactions were important in this process through the acceptance and support of their immediate and extended family members regarding their deafness and integration into the deaf community.
9	Smiler & McKee (2007).	Perceptions of Maori deaf identity in New Zealand.	8 deaf Maori individuals (females N=4; males N=4) in their mid-20s to early 50s.	Early childhood onset.	Semi- structured interviews	The findings report that communication limitations resulted in an uncertain sense of Maori identity and cultural affiliation however the majority of participants chose not to identity with either

						Deaf or Maori groups and instead have an identity salience between their two cultures.
10	Steinberg, Davila, Collazo, Loew, Fischgrund (1997).	'A little sign and a lot of love...': Attitudes, perceptions, and beliefs of Hispanic families with deaf children.	9 Hispanic families of children attending the Pennsylvania school for the Deaf.	Diagnosis of deafness occurred in early childhood for all participants; age 1 (N=1), age 2 (N=7) and age 3 (N=1).	Semi-structured interviews	The majority of parents reported positive or neutral feelings towards deafness, however, they reported stigma towards the child from both extended family and the wider community and having to defend their child's identity. Parents' reports of their ability to communicate with their child were contradictory and inconsistent.
11	Young, Canavan, & Hindley (1999).	Hearing parents' adjustment to a deaf child - the impact of a cultural-linguistic model of deafness.	24 individual's involved in a bilingual/bicultural early intervention programme (parents/ careers N= 12; Deaf consultants N=6; hearing teachers of the deaf N=6).	The parents represented a sample of 9 deaf infants; onset was therefore in early childhood.	Semi-structured interviews	The study highlights the importance for parents' of viewing their child as any other rather than identifying with them as a 'deaf child' and the impact of interacting with deaf adults in an intervention program on their perception of deafness.

*Where mixed methods were used information is provided from the qualitative section of the study.

Appendix 3: Journal Submission Guidelines

Articles and essays are welcomed from all countries. All submissions must be in English and be submitted as a Word document (no PDFs). Contributors should submit papers electronically to Dr. Peter V. Paul (paul.3@osu.edu).

There is no minimum or maximum length (within reason). The font size is 12, and we recommend Times New Roman or Times. Please call out tables and figures in the manuscript where they should be placed (e.g., <insert table 1 near here>) and include these items at the end of the text after the reference list (or appendix, if you include this item) in ONE document.

(If your paper is accepted for the journal, we will ask for any figures to be sent in their original formats as separate files.)

It is critical to adhere to the style of the sixth edition of the *Publication Manual of the American Psychological Association* (APA). APA provides guidelines regarding headings and the type of information to be included in each heading for primary (empirical) and secondary (analysis) research manuscripts. APA also provide guidelines for footnotes, tables, figures, and abstracts. Sample papers can be found in the APA (pp. 41–59).

We also ask that you provide keywords (at the end of the abstract) and identify the main author for correspondences.

Except for the title page, the text should be double-spaced.

Permissions. Contributors are responsible for obtaining permission to reprint tables, figures, illustrations, and large extracts. Copies of the permission letters must accompany the manuscript.

Proofs. One set of proofs will be sent to the lead author. Contributors are responsible for proofreading and returning the proofs by the given deadline.

Appendix 4: Recruitment Email

Version 1:2
13.02.2017

University of Lincoln
School of Psychology
How Are Hallucinations And Delusions Shaped By Experiences Of Deafness study

IRAS Project ID: 217124

Researcher: ***Saffron Morris***
Request for recruitment

Dear xxxxxx,

This is an invitation to take part in a research study investigating the experiences of hallucinations and delusions for people who are Deaf British Sign Language users. The study will explore the individual experiences of having hallucinations and delusions and what these mean for the Deaf person.

I have contacted your site because you have been identified as a mental health service provider for Deaf service users. The purpose of this study is to increase understanding of the experiences of hallucinations and/or delusions for people who are Deaf. This will help to gain more knowledge of the meaning of these experiences for the individual and understand these experiences from the perspective of the Deaf person and Deaf culture.

Participants will be asked to take part in two interviews about their experiences of hallucinations and/ or delusions lasting a total of 2-3hours. The researcher has an awareness of Deaf culture and is training in British Sign Language (level 3) and a British Sign Language interpreter will be provided for the interviews. Consent to interview an appropriate relative or professional (identified by the participant) and review clinical case files will also be sought to gather more information about these experiences and any factors which may have had an impact on the individual throughout their life and over the course of the development of the hallucinations and/ or delusions.

If you are willing to be involved in this research and have anyone in your service meeting the following criteria; aged 18 and over, has a profound prelingual deafness, uses British Sign Language as a primary mode of communication, has a diagnosis of psychosis and reports experiences of hallucinations and/ or delusions, please contact the researcher on the contact details at the bottom of this email for further information.

Yours Sincerely,
Saffron Morris
Trainee Clinical Psychologist
Email: *09146402@lincoln.students.ac.uk*
Trent DClinPsy Program, Bridge House, University of Lincoln,
Brayford Pool, Lincoln, Lincolnshire,
LN6 7TS, United Kingdom

Appendix 5: Participant Information Sheet

Version 1:3
09.03.2017

University of Lincoln
School of Psychology
How Are Hallucinations And Delusions Shaped By Experiences Of Deafness study

IRAS Project ID: 217124

Participant information sheet
Researcher: ***Saffron Morris***

This is an invitation to take part in a research study investigating the experiences of hallucinations and delusions for people who are Deaf British Sign Language users. The study will explore the development of hallucinations and delusions looking at the history of these experiences for the Deaf person.

Why am I being invited to take part?
The reason you have been approached is because you have experiences of hallucinations and or delusions and have indicated to your care team that you are interested in taking part in the research. Before you decide if you wish to take part, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully.

What is the study about?
The purpose of this study is to increase understanding of the experiences of hallucinations and/or delusions for people who are Deaf. This will help to gain more knowledge of the development of these experiences for the individual and understanding these experiences from the perspective of the Deaf person and Deaf culture.
What will I be asked to do?
You will be asked to take part in two interviews lasting a total of 2-3hours. The researcher has an awareness of Deaf culture and is training in British Sign Language (level 3) and a British Sign Language interpreter will be provided for you for the interviews. During the interviews you will be asked to talk about your experiences of hallucinations and/ or delusions over the course of their development. The interviews will be video and audio recorded to allow the researcher to accurately document your experiences.

As part of the study you will be asked to give your consent for the researcher to review your clinical case files and to contact professionals (e.g. Psychologists or nursing staff) who are working with you currently and/or have worked with you in the past. The information recorded in your case files will be reviewed to gain as much information as possible about your experiences. The reason for reviewing your case files is to gather more information in a way which requires less time from yourself and also to gain important information about your individual experiences which may not be explored during the interview process

You will also be asked to identify an appropriate relative or professional who you would be happy for the researcher to interview. This supporting interview will only take place with your consent and you are asked to identify an individual whom you feel comfortable with the researcher interviewing and who is familiar with your experiences of hallucinations and/or delusions. The review of your clinical case files and an interview with a relative or professional will also provide the researcher with a fuller account of your experiences and will increase understanding of any factors that have impacted on you throughout your life and over the course of the development of your hallucinations and/ or delusions.

Will I be paid?
You will not be paid for participation in the study but will be reimbursed for any travel required at a rate of 24p per mile. If you choose to withdraw from the study at any time, you will still be paid for any travel you have already completed.

Do I have to take part?
Participation in this study is totally voluntary and you are under no obligation to take part but it would be useful to learn about your views and experiences. You are free to withdraw at any point before or during the study and without having to give a reason. You can leave the interview at any point should you wish. You can withdraw your data up to two weeks after your final interview; the reason for this deadline is because analysis of the data will begin after this time.

Are there any risks to taking part?
No risks have been identified as a direct result of involvement in this study. There is the potential for the information discussed during the interviews to be upsetting as we may ask you to think back to more difficult times in your life but support will be identified for you following interviews should this be required.

You will be provided with a summary of the findings regarding your participation in the study. Because information is being gathered from multiple sources (a review of your clinical case files and an interview with the identified relative or professional), there is the possibility that the final summary of findings may contain new and potentially upsetting information. You can contact the researcher or you current care team should you find any of the information distressing, appropriate support will also be identified for you to access with the report should you wish to.

Are there any advantages to taking part?
By taking part in the study and sharing your experiences as a Deaf person who has experiences of hallucinations and/ or delusions the researcher will get a better understanding of these experiences from a Deaf perspective.
These findings will be published in the hope that they will add to the evidence base available for mental healthcare professionals to help to improve treatment and support for other Deaf service users who are currently experiencing these symptoms.

Using this particular research method will result in a psychological explanation of how your hallucinations and/ or delusions may have developed over the course of time, and as such, there is a potential benefit for your care by sharing this with professionals who work to support you. You will be provided with a personalised report of the findings once analysis has been completed, at this time you will be asked for your consent to share this information with your care team. This is optional and if you wish for the information to remain confidential the information will not be provided to your

care team. In order to provide you with this report of your individual findings the researcher will need to take your contact details. Information on how these will be stored is provided below.

Will my information be kept confidential?

You will be assigned a participant number so that the records will be anonymous which will be stored in a separate password protected file to any identifiable information. Access to electronic resources will be restricted to the researcher, supervisors and limited members of the Trent Doctorate in Clinical Psychology (DCinPsy) course staff. Identifiable data that will be stored will consist of your name, age, signed consent form, and contact details which will be stored in a lockable filing cabinet at the University of Lincoln. Storing the identifiable data in this manner means that it is separate to the anonymised data allowing for your identity to be protected from members of staff who have access to the electronic resources. The reason that we store your name, age, consent form and contact details is so that there is a record of who participated in the study and ensures that the individual findings are recorded accurately. Because the researcher intends to provide you with a report of your individual findings your anonymous participant number needs to be linked back to your identifiable contact information to provide you with this final report. In line with policies of data protection outlined in the British Psychological Society and the University of Lincoln's ethics committee, this information will be stored for a period of seven years, after which time all information will be destroyed securely. Any published data will only contain anonymous information, data will be presented in groups where possible, and will remove any information that will make a client identifiable.

The researcher intends to publish the findings of this study in a peer-reviewed academic journal. All personal information will be anonymised, no identifiable information will be published and substitutions of words and phrases will be used to protect your identity. Should you disclose any issues of risk to yourself or others during the interview this would have to be shared with other professionals. Should the researcher have to share any disclosed issues of risk with other professionals, this will be discussed with you. All data collected will be stored according to the University of Lincolns storage and confidentiality policies.

What if I have a complaint?

If you have any questions or concerns please don't hesitate to ask now or at any time during your participation. Any concerns or complaints regarding the study can be discussed with the researcher whose contact details are provided at the bottom of this form. If the complaint is regarding the researcher or you do not feel it has been satisfactorily resolved by the researcher you can contact The School of Psychology Research Ethics Committee:

College of Social Sciences, Bridge House, University of Lincoln,
Brayford Pool, Lincoln, Lincolnshire,
LN6 7TS, United Kingdom
Email: soprec@lincoln.ac.uk

Who is organising and funding the research?

This research is sponsored by the University of Lincoln and is being funded by the Trent Doctorate in Clinical Psychology, a doctoral level training programme lead by the University of Lincoln and the University of Nottingham.

Who has reviewed the study?

This study has been reviewed and given approval by the University of Lincoln and NHS Research Ethics Committee.

Further information and contact details:
Thank you for your interest in this study. If you would like any more information or wish to take part in this study please contact the researcher Saffron Morris:

Trent DClinPsy Program, Bridge House, University of Lincoln,
Brayford Pool, Lincoln, Lincolnshire,
LN6 7TS, United Kingdom
Email: *09146402@lincoln.students.ac.uk*

Appendix6: Professional/ Relative Information Sheet

Version 1:3

09.03.2017

University of Lincoln
School of Psychology
How Are Hallucinations And Delusions Shaped By Experiences Of Deafness study
IRAS Project ID: **217124**

Relative/ Professional information sheet
Researcher: ***Saffron Morris***

This is an invitation to take part in a research study investigating the experiences of hallucinations and delusions for people who are Deaf British Sign Language users. The study will explore the development of hallucinations and delusions looking at the history of these experiences for the Deaf person.

Why am I being invited to take part?

The reason you have been approached is because you have been identified as an appropriate relative or professional by *named person*, who is a participant in this study. The individual has provided consent for the researcher to contact you and is happy for you to be interviewed to provide additional information about their experiences of hallucinations and/or delusions.

What is the study about?

The purpose of this study is to increase understanding of the experiences of hallucinations and/or delusions for people who are Deaf. This will help to gain more knowledge of the development of these experiences for the individual and understanding these experiences from the perspective of the Deaf person and Deaf culture.

What will I be asked to do?
You will be asked to take part in an interview lasting a total of 1-1.5 hours. During the interview you will be asked to talk about your understanding of the *named person's* experiences of hallucinations and/ or delusions over the course of their development and any significant life events that you are aware of. The interviews will be audio recorded to allow the researcher to accurately document your responses.

Will I be paid?
You will not be paid for participation in the study but will be reimbursed for any travel required at a rate of 24p per mile. If you choose to withdraw from the study at any time, you will still be paid for any travel you have already completed.

Do I have to take part?
Participation in this study is totally voluntary and you are under no obligation to take part but it would be useful to learn about your views regarding *named person's* experiences. You are free to withdraw at any point before or during the study and without having to give a reason. You can leave the

interview at any point should you wish. You can withdraw your data up to two weeks after your interview; the reason for this deadline is because analysis of the data will begin after this time.

Are there any risks to taking part?

No risks have been identified as a direct result of involvement in this study. There is the potential for the information discussed during the interviews to be upsetting as we may ask you to think back to difficult times in *named person's* life which may have also impacted on your life. Support will be identified for you following interviews should this be required.

Are there any advantages to taking part?

By taking part in the study you will support the researcher to get a better understanding of experiences of hallucinations and delusions for Deaf people, an under-researched population in this area. These findings will be published in the hope that they will add to the evidence base available for mental healthcare professionals to help to improve treatment and support for Deaf service users who are currently experiencing these symptoms.

What if I have a complaint?

If you have any questions or concerns please don't hesitate to ask now or at any time during your participation. Any concerns or complaints regarding the study can be discussed with the researcher whose contact details are provided at the bottom of this form. If the complaint is regarding the researcher or you do not feel it has been satisfactorily resolved by the researcher you can contact The School of Psychology Research Ethics Committee:

College of Social Sciences, Bridge House, University of Lincoln,
Brayford Pool, Lincoln, Lincolnshire,
LN6 7TS, United Kingdom
Email: soprec@lincoln.ac.uk

Will my information be kept confidential?

You will be assigned a participant number so that the records will be anonymous which will be stored in a separate password protected file to any identifiable information. Access to electronic resources will be restricted to the researcher, supervisors and limited members of the Trent Doctorate in Clinical Psychology (DCinPsy) course staff. Identifiable data that will be stored will consist of your signed consent form which will be stored in a lockable filing cabinet at the University of Lincoln. Storing the identifiable data in this manner means that it is separate to the anonymised data allowing for your identity to be protected from members of staff who have access to the electronic resources. The reason that we store your consent form is so that there is a record of who participated in the study. In line with policies of data protection outlined in the British Psychological Society and the University of Lincoln's ethics committee, this information will be stored for a period of seven years, after which time all information will be destroyed securely. Any published data will only contain anonymous information, data will be presented in groups where possible, and will remove any information that will make a client identifiable.

The researcher intends to publish the findings of this study in a peer-reviewed academic journal. All personal information will be anonymised, no identifiable information will be published and

substitutions of words and phrases will be used to protect your identity. Should you disclose any issues of risk to yourself or others during the interview this would have to be shared with other professionals. Should the researcher have to share any disclosed issues of risk with other professionals, this will be discussed with you. All data collected will be stored according to the University of Lincolns storage and confidentiality policies.

The information you provide will be included in a written report to the *named person* which will summarise the findings from the multiple sources (*named persons* interviews, your interview and a review of *named person's* clinical case files). With n*amed person's* consent this report will also be shared with their care team as it is hoped that by collating the multiple sources a greater understanding of their hallucinations or delusions can be achieved which may help with their current care. Your consent will be required to include this information in the final report.

Who is organising and funding the research?
This research is sponsored by the University of Lincoln and is being funded by the Trent Doctorate in Clinical Psychology, a doctoral level training programme lead by the University of Lincoln and the University of Nottingham.

Who has reviewed the study?
This study has been reviewed and given approval by the University of Lincoln and NHS Research Ethics Committee.

Further information and contact details:
Thank you for your interest in this study. If you would like any more information or wish to take part in this study please contact the researcher Saffron Morris:

Trent DClinPsy Program, Bridge House, University of Lincoln,
Brayford Pool, Lincoln, Lincolnshire,
LN6 7TS, United Kingdom
Email: *09146402@lincoln.students.ac.uk*

UNIVERSITY OF LINCOLN

Appendix 7: Participant Consent Form

Version 1:3

09.03.2017

Participant Consent Form

IRAS Project ID: **217124**

How Are Hallucinations And Delusions Shaped By Experiences Of Deafness study

Participant Identification Number:

Please initial box

1. I confirm that I have read the information sheet Version 1.3 dated 09.03.2013 for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my medical care or legal rights being affected. ☐
3. I give permission for the researcher to have access to my clinical records. ☐
4. I understand that my data can be withdrawn up until two weeks after my final interview. ☐
5. I give permission for the interviews to be video/audio recorded. ☐
6. I give permission for the researcher to collect, store and analyse information obtained from my participation in this study? ☐
7. I give permission for the researcher to publish information obtained from my participation in this study? ☐
8. I give permission for the researcher to contact and interview the appropriate relative or professional that I have identified? ☐
9. I agree to take part in the above study. ☐

Name of Participant	Date	Signature
Researcher	Date	Signature

If an interpreter was required to translate the consent form please sign below.

"I have translated the information about the study to the above participant and he/she has agreed to take part."

Interpreter	Date	Signature

UNIVERSITY OF LINCOLN

Appendix 8: Professional/ Relative Consent Form

Version 1:3
09.03.2017

Relative/ Professional Consent Form
IRAS Project ID: **217124**
How Are Hallucinations And Delusions Shaped By Experiences Of Deafness study

Please initial box

1. I confirm that I have read the information sheet version 1.3 dated 09.03.2017 for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason. ☐
3. I understand that my data can be withdrawn up until two weeks after my final interview. ☐
4. I give permission for the interviews to be video/audio recorded. ☐
5. I give permission for the researcher to collect, store and analyse information obtained from my participation in this study? ☐
6. I give permission for the researcher to publish information obtained from my participation in this study? ☐
7. I give permission for the researcher to share the information with the family member/client who identified me to provide information about their experiences of hallucinations/ delusions in a written report summarising the findings, and understand that, with their permission, this report will also be shared with the individuals care team ☐
8. I agree to take part in the above study. ☐

_____ _____ _____

Name of Participant	Date	Signature
Researcher	Date	Signature

If an interpreter was required to translate the consent form please sign below.

"I have translated the information about the study to the above participant and he/she has agreed to take part."

Interpreter	Date	Signature

Appendix 9: Consent to Provide a Report to Healthcare Professionals

Version 1:3
09.03.2017

Consent to provide a report to healthcare professionals

How Are Hallucinations And Delusions Shaped By Experiences Of Deafness study
IRAS Project ID: **217124**

The method used in the research study you have participated in has allowed for us to produce a psychological explanation of how your hallucinations and/ or delusions have developed over the course of time, and as such, there is a potential benefit for your care by sharing this with professionals who work to support you.

We have provided you with a report of the findings from your interviews and the information we gathered from your case files. Please take the opportunity to read through your report before deciding whether you are happy for us to share this information with your care team.

If you are happy for this information to be shared with your care team please sign the consent form below and return this form in the prepaid envelope provided.

"I consent to my care team being provided with a report of the findings from my participation in the research study."

Name of Participant	Date	Signature

Appendix 10: Debrief

Version 1:2
13.02.2017

University of Lincoln
School of Psychology
Researcher: *Saffron Morris*

Debrief Form

How Are Hallucinations And Delusions Shaped By Experiences Of Deafness study

The interviews you have taken part in will help us to understand the developmental history of your experiences of hallucinations and/or delusions and how your environment, experiences and the consequences of having these symptoms have shaped and maintained your hallucinations and/ or delusions. We will use the information from your clinical case files to add to this information to help increase our knowledge of how the experiences of hallucinations and delusions are unique and meaningful within Deaf frames of reference.

An individual report will be provided for you with a summary of these findings once analysis has been completed. In order to provide you with this report we need your consent to contact you now that you have finished your participation in the study.

A report can also be provided to your care team, this is optional and if you wish for the information to remain confidential the information will not be provided to your care team. We will ask for your consent to provide your care team with a report once you have received and had the opportunity to review your own report. A consent form to provide your care team with a report will be included with your individual report and this information will not be shared unless you return this.

I consent to being contacted in the future about the findings of the study by:

Post ☐ Email ☐

Signature of the Participant: Date:

Full name:

Appendix 11A: Participant Interview Schedules

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Version 1:2
13.02.2017

Participant Interview Schedule Outline
How Are Hallucinations And Delusions Shaped By Experiences Of Deafness study

Opening and closing statements

The initial interview will begin by introducing myself and the interpreter with the following initial opening statement:

Thank you for agreeing to take part in this study. My name is Saffron Morris, I am a trainee clinical psychologist and I am the lead researcher for this study. This is (Introduce interpreter) who will be here to interpret in each of the interviews you attend. The interpreter has signed a confidentiality agreement and will not discuss anything mentioned in these interviews outside of the interview room unless they need to correspond directly with myself on a secure email account. Do you have any questions about the study before we begin?

The following opening statement will then be provided and each remaining interview will begin with this statement:

Do you have any questions about today's interview? Let me know if you find any of the topics distressing, you do not have to talk about anything which is too upsetting so please let me know if this is the case. Please let me know if you need to take a break at any time during the interview. How are the seating arrangements for you? Are you ok to begin the interview now?

Each interview will close with the following statement:

Thank you for coming to the interview today and telling us about your experiences. How are you feeling after taking part in today's interview? Was there anything which was distressing or has elicited any particular emotions for you? (prompt to sign post if needed). Is there anything we have discussed today that you would like to clarify? Do you have any questions about the study or today's interview before you leave? The next interview is scheduled for (date and time) is this still convenient for you? If you have any questions in the meantime please feel free to contact me.

Interview 1

The focus of interview 1 is to gather information about the participants understanding and experiences of their hallucinations and delusions. Below are some example questions:

- Tell me about your hallucinations and/ or delusions. Do these have any general themes?
- What is your understanding of these experiences?
- How often do you experience these?
- Are you aware of anything which may make them better or worse?
- What is the impact these experiences have on your life?
- What has your involvement been with services for these experiences?
- Tell me about the first time you were aware you had a hallucination/ delusion.
- What was happening in your life at this time?
- Have there been any times in your life since your hallucinations/ delusions first started when they have been particularly better or worse?
- What was happening in your life at this time?

Interview 2

The focus of interview 2 is to gather information about the developmental history of the individual. The interview will also aim to clarify and fill in any gaps which remain from the first interview. This will involve gathering more information about any risk factors of interest that have been identified from interview 1 and to explore how the individual typically handles life stressors. Below are some example questions:

- What was it like growing up in your family?
- Is anyone else in your family Deaf? (if yes) who?
- (if no) Did your family learn to sign? How was communication in your family? Did you feel included?
- Tell me about your relationship with your parents? Siblings? Grandparents?
- Does anyone else in your family have any mental health difficulties? Tell me about these. How were these managed/ talked about in the family?
- Tell me about your experiences of school. Did you go to a Deaf or mainstream school?
- Tell me about your friends growing up. Were they mainly Deaf or hearing?
- What was your involvement in the Deaf community growing up?
- How did you feel about being Deaf?
- Are there any particularly important memories you have of your childhood, good or bad?
- How do you find you cope with stress?
- How have you responded to stressful events in your life?
- How do you usually approach problems?
- What are your worries? How do you cope with these? Have they been long standing?

Appendix 11B: Professional/ Relative Interview Schedule

Version 1:2
13.02.2017

UNIVERSITY OF LINCOLN

Relative/ Professional Interview Schedule Outline
How Are Hallucinations And Delusions Shaped By Experiences Of Deafness study

Thank you for agreeing to take part in this study. My name is Saffron Morris, I am a trainee clinical psychologist and I am the lead researcher for this study. Do you have any questions about the study before we begin?

Are you ok to begin the interview now?

- Tell me about your understanding of X's experiences of hallucinations/ delusions…. Are you aware of any general themes?
- When did they first experience hallucinations?
- Are you aware of anything that was happening in their life at the time that may have contributed to the development of these experiences?
- Are you aware of anything which may make X's symptoms better or worse?
- What is the impact these experiences X's life?
- Tell me about X's relationship with Parents? Siblings? Grandparents?
- Tell me about your understanding of X's hallucinations/ delusions….. are there any general themes?
- Tell me about X's involvement with services. How do you think they view services?
- What is your understanding of X's childhood?
- How was communication in the family? How do you think X viewed the limited communication?
- How do you think X viewed their position/ role in the family?
- What is your understanding of X's families attitude towards their diagnosis/ hallucinations/ delusions?
- Are you aware of any family history of mental health? What is X's relationship to this person? How was this managed within the family? What was his awareness of this?
- Tell me about X's experiences of school.
- What was X's involvement in the Deaf community growing up?
- What is your understanding of X's families attitudes towards deafness and their involvement in the Deaf community?
- How do you think this may have impacted on X?

- Are you aware of any common stressors for X?
- How does X typically cope with stress?
- Are you aware of any times when X's symptoms have been particularly better or worse?
- What is your understanding of any factors which might have contributed to this?
- Are you aware of any significant life events that X has experienced?
- How do you think that their hallucinations/ delusions link to their life experiences?
- Do you think that there are any experiences related to their experiences of being deaf that have contributed to their view of themselves/ others or the world? Explain?
- Are you aware of whether they have a deaf/ hearing or cultural identity?

Appendix 12: Interpreter Confidentiality Disclaimer

Version 1:2
13.02.2017

UNIVERSITY OF LINCOLN

Interpreter Confidentiality disclaimer

How Are Hallucinations And Delusions Shaped By Experiences Of Deafness study

Please initial box

1. I have been briefed about the nature of the study for which I will be involved in. ☐

2. I have been made aware of the relevant confidentiality policies and I am aware that any information discussed over the course of the study by any party involved (researcher, participants, family or care team) is not to be disclosed to anyone outside of the study or another member of the study who was not present during the discussion (apart from the researcher). ☐

3. I am aware that following each interview I can discuss any issues with the researcher. ☐

4. I am aware that I cannot email the researcher with any identifiable information of anyone involved in the study but I can contact them by phone over the course of the study to discuss urgent issues. ☐

5. If I have any concerns about sensitive information discussed or issues relating to risk I will raise these with the researcher who will take responsibility for following any necessary procedures. ☐

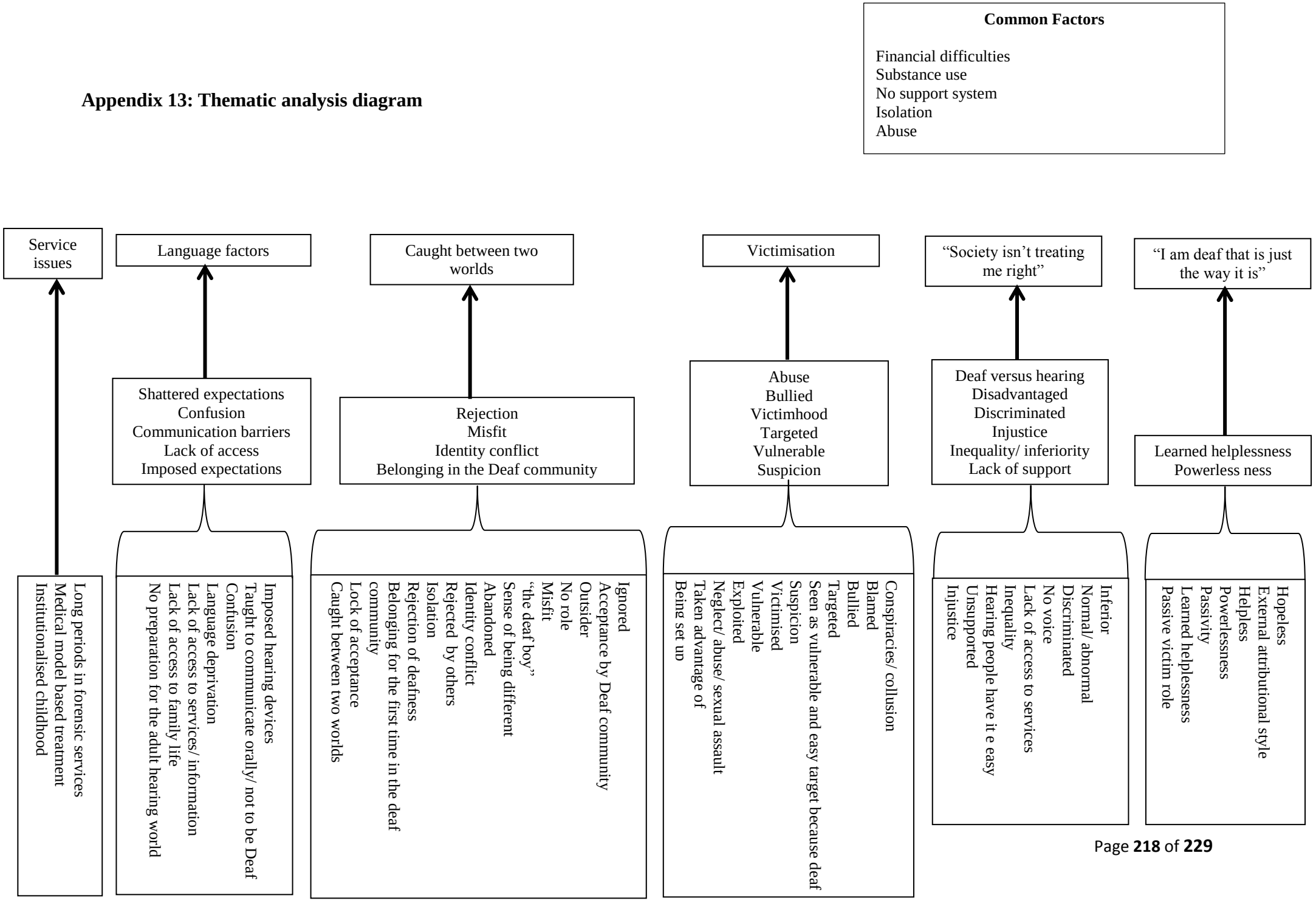
6. Should anyone raise any issues with me without the researcher present I will discuss these with the researcher at the soonest appropriate opportunity. ☐

7. I am happy to adhere to the instructions outlined and accept that any breach in confidentiality will be taken seriously and reported to the relevant bodies. ☐

_____	_____	_____
Researcher name	Date	Signature

_____	_____	_____
Interpreter name	Date	Signature

Appendix 13: Thematic analysis diagram



Appendix 14: Ethical Approval

University approval

From: Soprec
Sent: 03 November 2016 14:27
To: Saffron Morris [redacted]
Cc: [redacted]
Subject: Ethics application decision - PSY161745

Hi,

This is to confirm that your application titled *Deafness and Psychosis: How Are Hallucinations And Delusions Shaped By Experiences Of Being Deaf?* which was submitted for ethical approval, has been Conditionally approved by the School of Psychology Research Ethics Committee.

The following conditions must be met before approval can be granted:

- The application form should be to the point in future - e.g. do not send the full research proposal as this is unnecessary.

This should go through NHS ethics. We must see confirmation from IRAS or from the local trust before approval can be given. Please send this to soprec@lincoln.ac.uk.

Kind regards,
Matt

HRA approval

Health Research Authority

Miss Saffron Morris
Trainee Clinical Psychologist
Lincolnshire Partnership Foundation Trust
Trent DClinPsy Program, Bridge House,
University of Lincoln, Brayford Pool,
Lincoln, Lincolnshire,
LN6 7TS

Email: hra.approval@nhs.net

28 March 2017

Dear Miss Morris

Letter of HRA Approval

Study title:	**Deafness and Psychosis: How Are Hallucinations And Delusions Shaped By Experiences Of Being Deaf?**
IRAS project ID:	**217124**
REC reference:	**17/EM/0036**
Sponsor	**Lincoln University**

I am pleased to confirm that **HRA Approval** has been given for the above referenced study, on the basis described in the application form, protocol, supporting documentation and any clarifications noted in this letter.

REC favourable opinion

Health Research Authority
East Midlands - Nottingham 2 Research Ethics Committee
The Old Chapel
Royal Standard Place
Nottingham
NG1 6FS

Please note: This is the favourable opinion of the REC only and does not allow you to start your study at NHS sites in England until you receive HRA Approval

02 March 2017

Miss Saffron Morris
Trainee Clinical Psychologist
Lincolnshire Partnership Foundation Trust
Trent DClinPsy Program, Bridge House,
University of Lincoln, Brayford Pool,
Lincoln, Lincolnshire,
LN6 7TS

Dear Miss Morris

Study title:	**Deafness and Psychosis: How Are Hallucinations And Delusions Shaped By Experiences Of Being Deaf?**
REC reference:	**17/EM/0036**
IRAS project ID:	**217124**

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Conditions of the favourable opinion

The REC favourable opinion is subject to the following conditions being met prior to the start of the study;

- The Consent Form must be updated at point 1 to include the date and version number of the Participant Information Sheet.

You should notify the REC once all conditions have been met (except for site approvals from host organisations) and provide copies of any revised documentation with updated version numbers. Revised documents should be submitted to the REC electronically from IRAS. The REC will acknowledge receipt and provide a final list of the approved documentation for the study, which you can make available to host organisations to facilitate their permission for the study. Failure to provide the final versions to the REC may cause delay in obtaining permissions.

Confirmation favourable opinion conditions have been met

27 March 2017

Miss Saffron Morris
Trainee Clinical Psychologist
Lincolnshire Partnership Foundation Trust
Trent DClinPsy Program, Bridge House,
University of Lincoln, Brayford Pool,
Lincoln, Lincolnshire,
LN6 7TS

Dear Miss Morris

Study title:	**Deafness and Psychosis: How Are Hallucinations And Delusions Shaped By Experiences Of Being Deaf?**
REC reference:	**17/EM/0036**
IRAS project ID:	**217124**

Thank you for your submission of 23 March 2017. I can confirm the REC has received the documents listed below and that these comply with the approval conditions detailed in our letter dated 02 March 2017.

Documents received

The documents received were as follows:

Document	*Version*	*Date*
Participant consent form [consent form]	1.3	09 March 2017
Participant consent form [relative/ professional consent form]	1.3	09 March 2017

University Approval following favourable opinion

Dear Saffron,

These changes seem in order and are fine. I have noticed one thing. The information sheet correctly states that there is a 2 week data withdraw window. I can't seem to find any information on how a participant is to do that. Can you direct me to where that instruction is? If not, can you add a line stating how they do that. We normally advise that they should email Soprec on soprec@lincoln.ac.uk naming the study and quoting their participant ID (Soprec would then

contact you). The addition of this line would not require a resubmission to Soprec and we would be happy for you and your supervisor to take responsibility for this.

Therefore, regarding the NHS portion of this study:

· I am approving these changes by Chair's Action

· I am accepting the decision of IRAS's ethical approval and granting SOPREC approval on that basis.

This approval from SOPREC is contingent upon the instruction on how to withdraw data being added. This change does not need to come back to SOPREC.

Regarding X: I am granting **Conditional Approval** for X, contingent upon two factors:

1. The addition of the withdraw instruction (no resubmission needed)
2. Confirmation from X that they are happy with the research and they are happy to facilitate it.

Please remember, that it is no longer required to submit the Research Protocol and remember to put the SOPREC code in the subject line of any future emails; your code is PSY161745. This lets us know that the study has been reviewed and helps us quickly match the enquiry to the correct application.

Please let me know if I can be of any further assistance

Approval from recruitment site

RESEARCH DEPARTMENT

[redacted]

Tuesday 6th June 2017

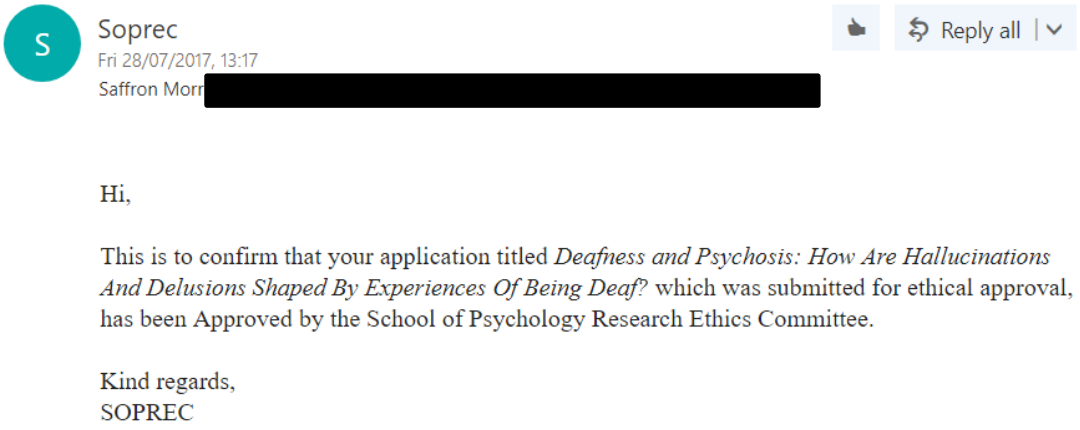
Dear Saffron

RE: Deafness and Psychosis: How are hallucinations and delusions shaped by experiences of being deaf?

I confirm that we have now received all the necessary paperwork for R&D approval for this study. This approval is until 30th July 2018.

You may now begin recruitment for your study in line with the approved protocol.

Final approval from University after meeting all conditions



Soprec
Fri 28/07/2017, 13:17
Saffron Morr[redacted]

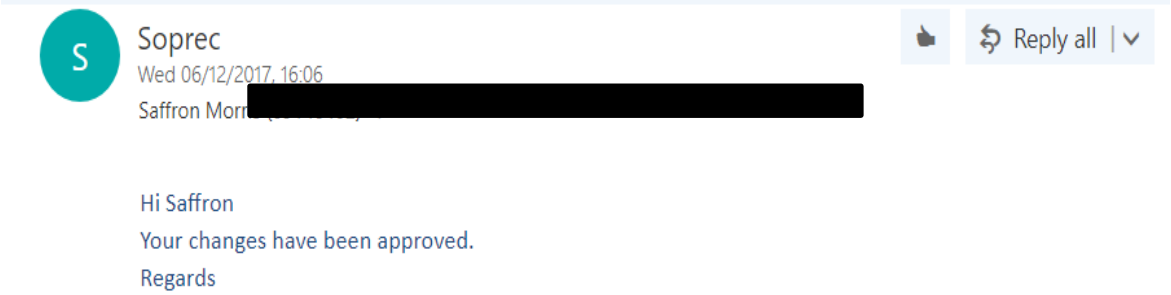
Reply all

Hi,

This is to confirm that your application titled *Deafness and Psychosis: How Are Hallucinations And Delusions Shaped By Experiences Of Being Deaf?* which was submitted for ethical approval, has been Approved by the School of Psychology Research Ethics Committee.

Kind regards,
SOPREC

Approval of exclusion criteria amendment from University



Soprec
Wed 06/12/2017, 16:06
Saffron Morr[redacted]

Reply all

Hi Saffron
Your changes have been approved.
Regards

Approval of exclusion criteria amendment from REC

From: NRESCommittee.EastMidlands-Nottingham2@nhs.net [mailto:NRESCommittee.EastMidlands-Nottingham2@nhs.net]
Sent: 26 March 2018 15:06
To: [redacted]
Subject: IRAS PROJECT ID 217124, REC Reference 17/EM/0036 Confirmation of favourable opinion for substantial amendment

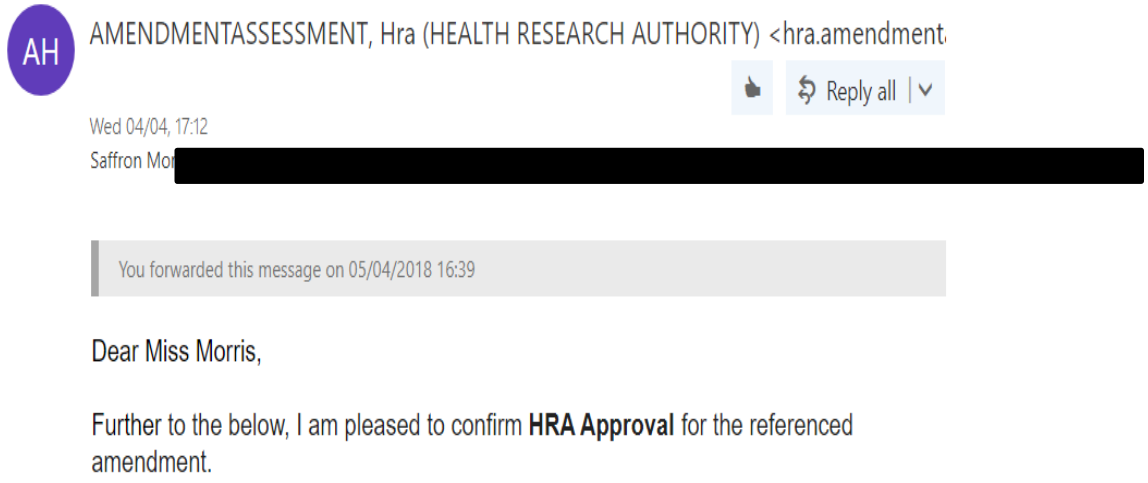
Dear Miss Morris

IRAS project ID:	217124

REC reference:	17/EM/0036
Short Study title:	How Are Hallucinations And Delusions Shaped By Experiences Of Deafness
Date complete amendment submission received:	15 March 2018
Amendment No./ Sponsor Ref:	1
Amendment Date:	12 January 2018
Amendment Type:	**Substantial**
Outcome of HRA Assessment	**HRA Approval for the amendment is pending** – the HRA will separately confirm HRA Approval for the amendment by email.

I am pleased to confirm that this amendment has been reviewed by the Research Ethics Committee and has received a Favourable Opinion.

Approval of exclusion criteria amendment from HRA



Appendix 15a: Ben's File Review

[Redacted- access not available]

Appendix 15b: Michael's File Review

[Redacted- access not available]

Appendix 15c: Aiden's File Review

[Redacted- access not available]

Poster